ENGINEERING NEWS-RECORD

A. A. Bates charts a new path for ASTM p.57

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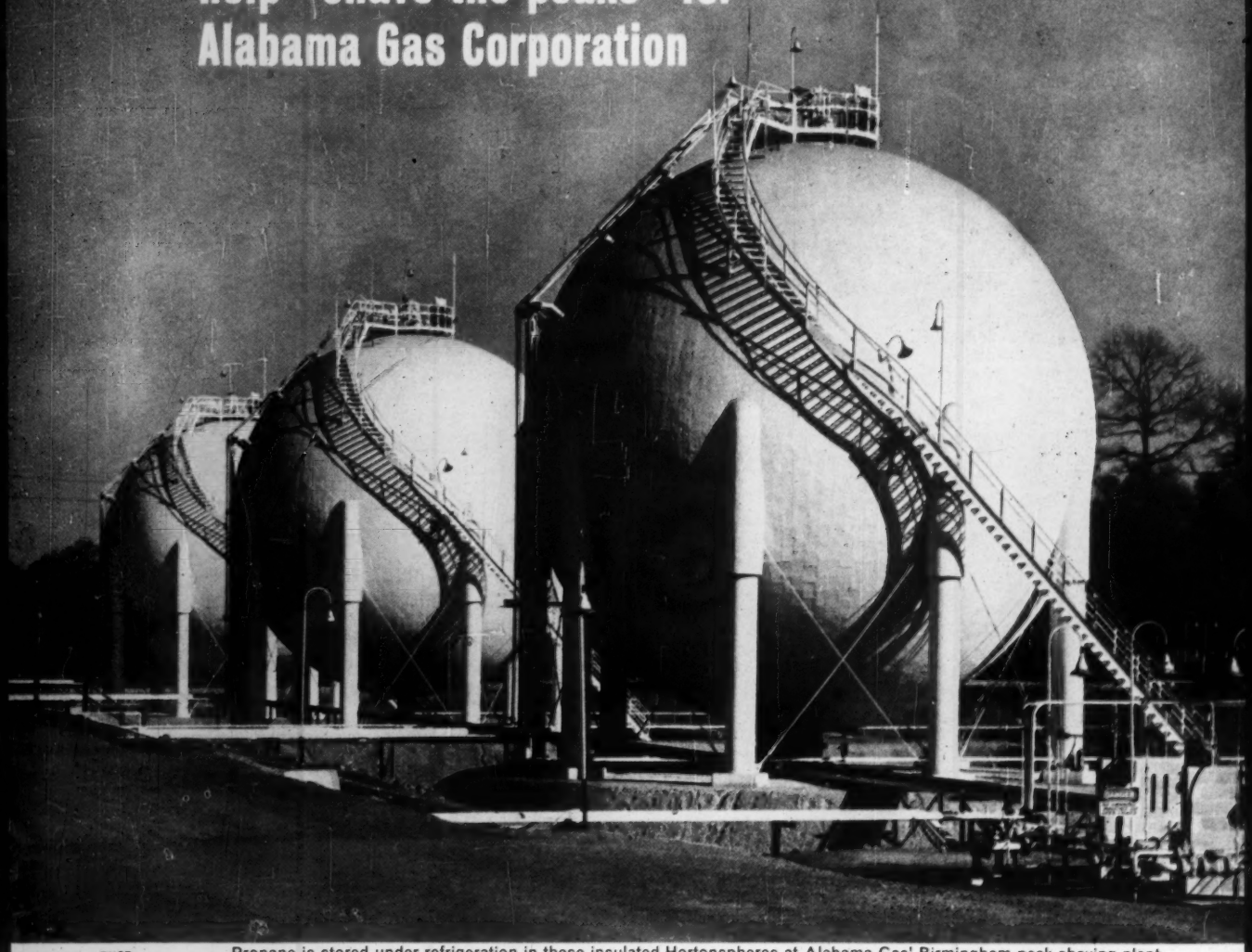
HORTONSPHERES®

help "shave the peaks" for Alabama Gas Corporation



E56CB Propane is stored under refrigeration in these insulated Hortonspheres at Alabama Gas' Birmingham peak shaving plant.

Alabama Gas Corporation supplies the natural gas that feeds the furnaces of 49 growing communities. When cold weather strikes sunny Alabama, the demand for gas skyrockets. This situation calls for "peak shaving" . . . the boosting of normal gas supplies to meet a temporary condition.

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Hortonspheres are used extensively for the storage of volatile liquids and gases under pressure . . . with or without refrigeration. Write our nearest office for full details.

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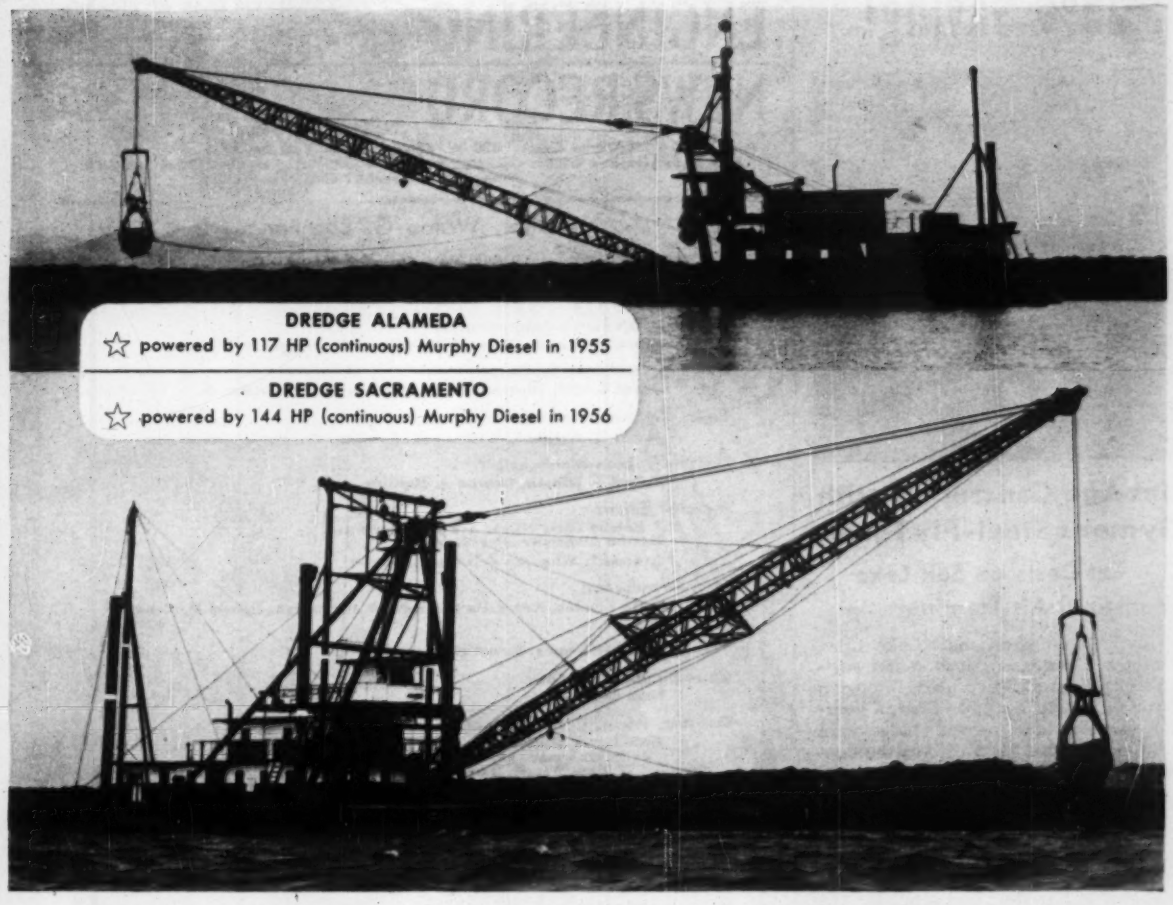

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Designed for Salt Lake City Corporation by the architectural-engineering firm of Ashton, Evans and Brazier.

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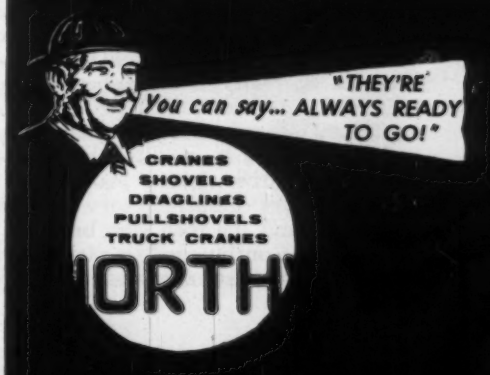
For the work it will do! Results! That is what you pay your money for in the end! The point is, "will it do what you want it to, profitably, when you want it done." This is the concept that is behind the design of all Northwest equipment.

Look at the picture—a typical job! The rig is a Northwest 25-D on an overpass. He is swinging a bucket. The Fair-Lead is on the machine. He has a Northwest Independent High Speed Boom Hoist. He has a 3rd drum for an extra load line. This rig can pick up the free leads of a pile driver with a free line for piles and hammer or handle a dragline bucket in a matter of minutes without a basic change.

This is just a small part of the things that Northwest brings you that get the job done. They are the things that make it possible for you to say, "That Northwest is always ready to go!" They are among the many features that make Northwest the finest machine of its kind.

Buy for the work it will do! Let a Northwest man tell you about the many other advantages that Northwest equipment has for you.



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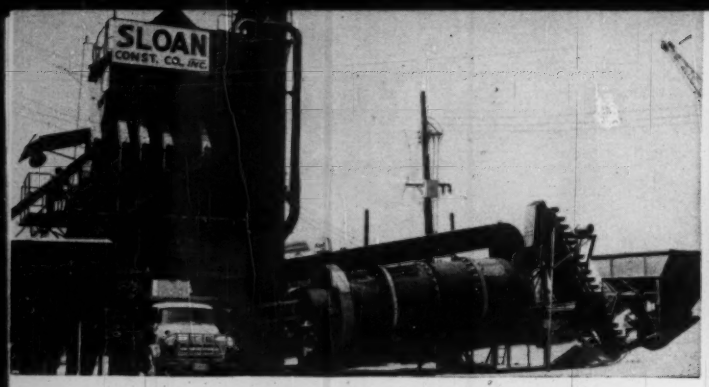
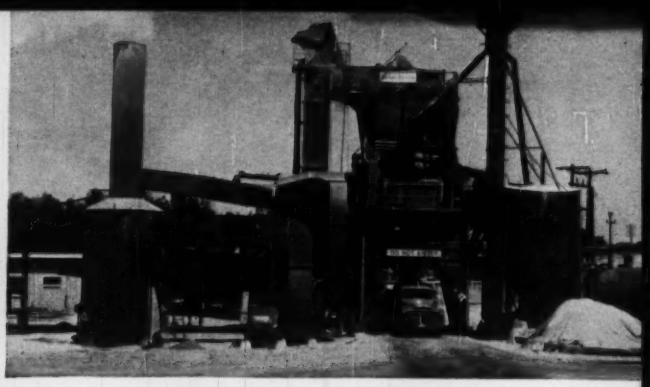
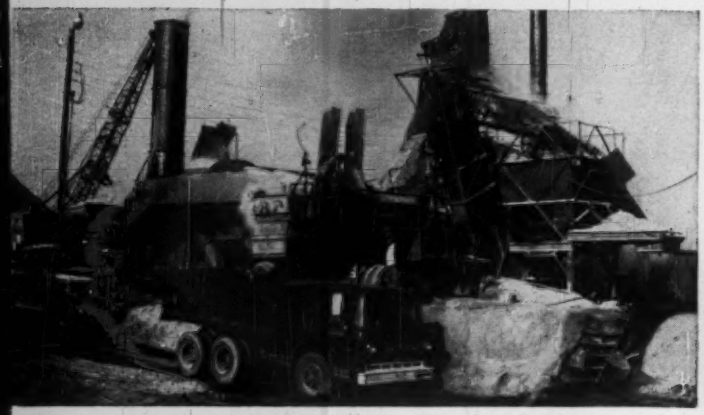


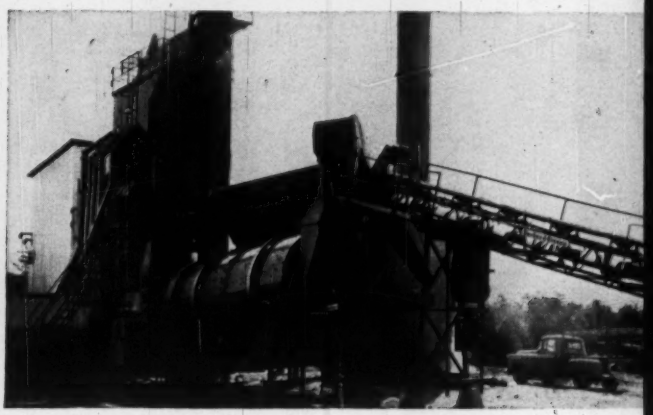
Oldest of the Sloan BatchOmatics is this 894, Liberty, S. C., which runs 100% automatic and has produced 515,000 tons since 1956.



On a permanent location at Lakeside Quarry, Greenville, S. C., this 896 BatchOmatic is nearing the 200,000 ton mark and has run 100% automatic since the fall of 1958.



Here's an 848 plant that has been moved 30 times since 1952 and has produced 1,600,000 tons over that span. Located at Blacksburg, S. C., the plant averages 150 tph with a top of 225 tph.



Third and newest of the Sloan BatchOmatics is this Model 896 shown just starting operations at Pacolet, S. C.

FIVE BARBER-GREENE PLANTS OF LOW-COST MIX FOR

Large asphalt contractor in southeast buys 6th plant to work with nine Barber-Greene finishers on '60 contracts totalling 1,200,000 tons

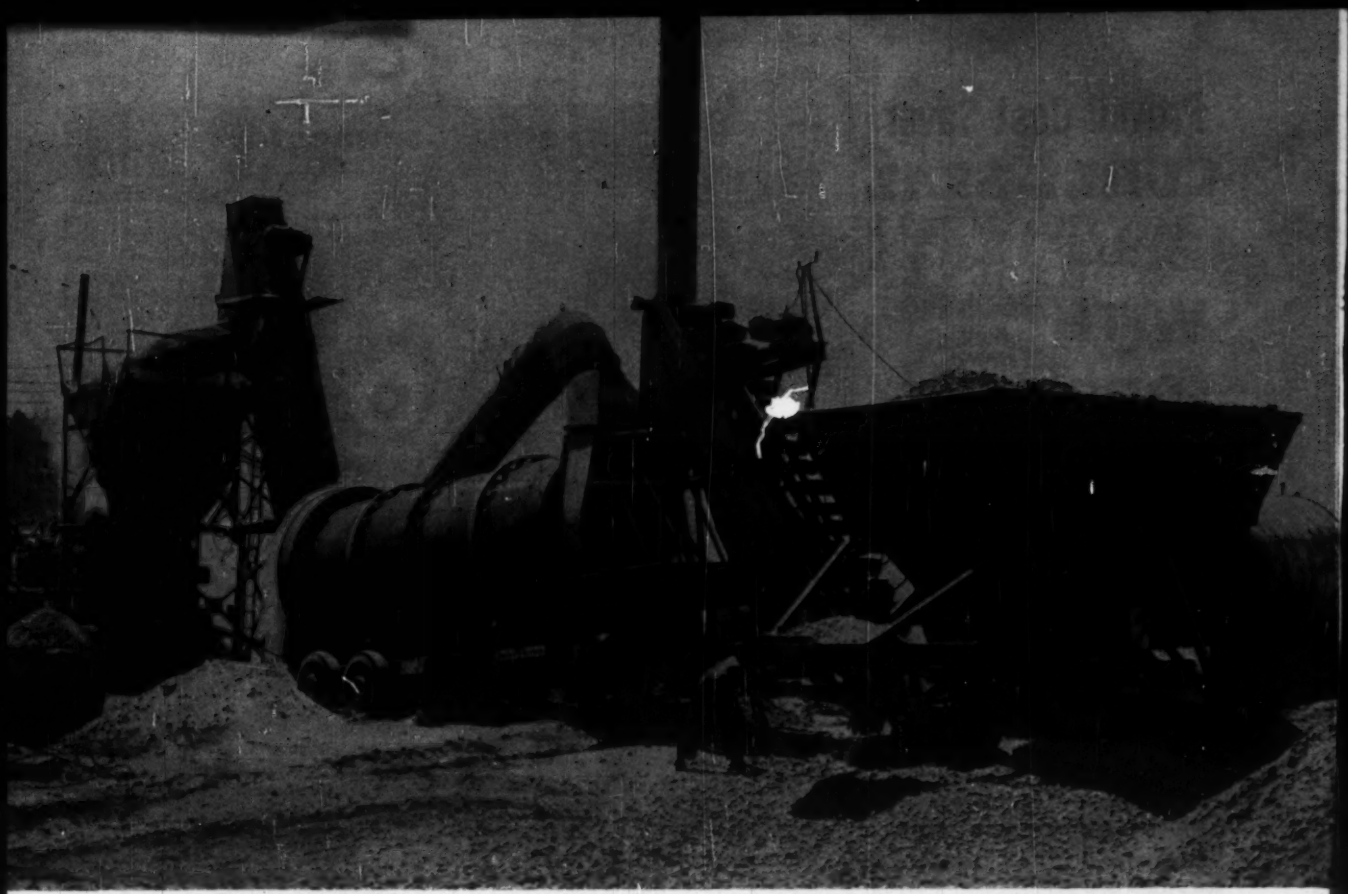
Sloan Construction Co., Inc., Greenville, South Carolina, large asphalt contractor in the southeast, has produced 5,090,800 tons of low-cost asphalt mix with five Barber-Greene Continuous Mix and BatchOmatic plants.

V. H. Breazeale, vice president and procurement manager, says "We have just added a sixth Barber-Greene—a Model 896 BatchOmatic, to use with our nine Barber-Greene finishers in handling our 1960 contracts which total 1,200,000 tons, including $4,500,000 worth of Interstate jobs.

All Plants Are Barber-Greenes—"We've standardized on Barber-Greene plants," he adds, "because of years of satisfactory service from the equipment and the men who back up what they sell. We buy Continuous Mix plants because we've found they consistently maintain accuracy well within spec tolerances and because of the ease with which they can be transported from job to job and set up in 3-5 days. Because of this good record, we have now decided upon Barber-Greene BatchOmatic plants for our permanent installations. Maintenance on all our plants has been low and our men are so familiar with them that servicing is done in minimum time."

Sloan's present plants, purchase dates and total output follow: Model 848 Continuous Mix, 1946, 2,200,000 tons; Model 848 Continuous Mix, 1952, 1,600,000 tons; Model 848 Continuous Mix, 1955, 600,000 tons; Model 894 BatchOmatic, 1956, 515,000 tons; Model 896 BatchOmatic, 1958, 175,800 tons; and Model 896 BatchOmatic, 1960, ready to start operations.

Before buying your new asphalt plant, check



Starting its 15th year of service is this Model 848 Continuous Mix plant, the oldest of the Sloan-owned Barber-Greenes shown at Fair Forest, S. C. The firm has produced 2,200,000 tons of mix with this durable veteran that shows no signs of approaching retirement age as it heads for the 3,000,000 ton class.

PRODUCE 5,090,800 TONS SLOAN CONSTRUCTION CO., INC.

with your Barber-Greene Distributor and discover why his plants were again an overwhelming No. 1 choice of contractors in a 1960 poll. He offers you greatest choice of components, greatest values, even complete materials handling systems including conveyors, elevators and feeders.

Only Barber-Greene offers four different finishers plus a new versatile Road Widener—equipment sized for all your needs.

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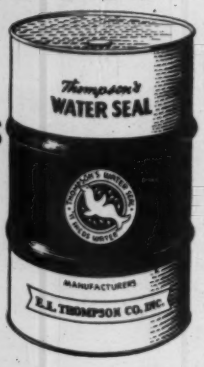

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Eliminates waterproofing concrete floors.

Permits adequate time for smooth troweling.

Send for technical bulletin and Contractors Case History file.

A proved bond breaker for pre-cast, tilt up and lift slab construction. Permits easy, clean separation of slabs, walls, pre-cast members.

Available in 5 and 55 gallon drums from building supply stores, paint and hardware dealers.

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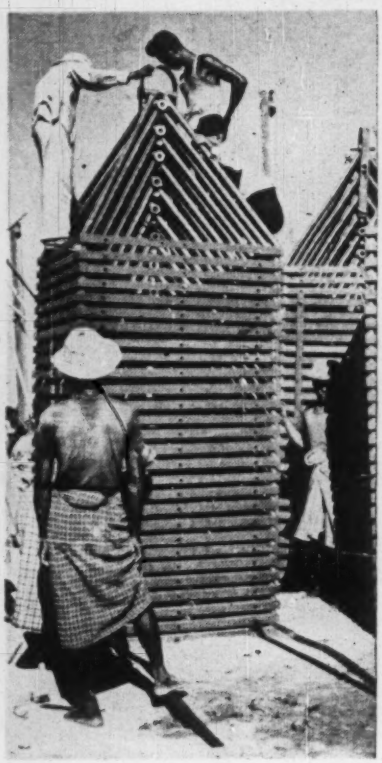
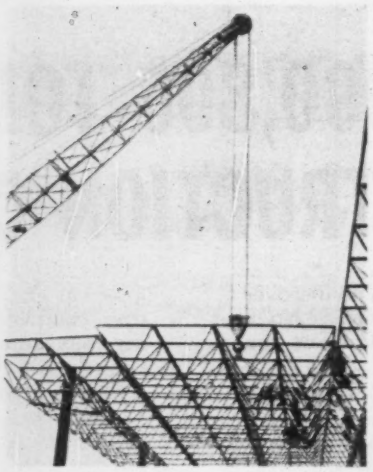


Space Frame Roofs . . .



Cover the Whole World

SIR—Your May 19 issue described the prefabricated space-truss roof erected in Kalamazoo, Mich., for the Upjohn Company.

The pictures above show a somewhat different method of applying mass-production principles to space frame fabrication. It was developed by this firm some seven years ago. In addition to simplifying transportation problems, the design permits adjustment of camber in the deck as the bottom ties are all adjustable.

The steelwork in the pictures was also for a pharmaceutical factory—in Rangoon, Burma.

JOHN BOLTON
Bolton, Hennessey & Partners
Consulting Engineers
London, England

Measuring Earthquakes

The energy equivalent of a Richter-Scale reading of 8.5 in the Chilean earthquake (ENR June 16, p. 22) should read 7 x 10^{18}, not 7 x 1,018 ft-lb of energy.

Here's the basis of the scales used to measure earthquake intensity:

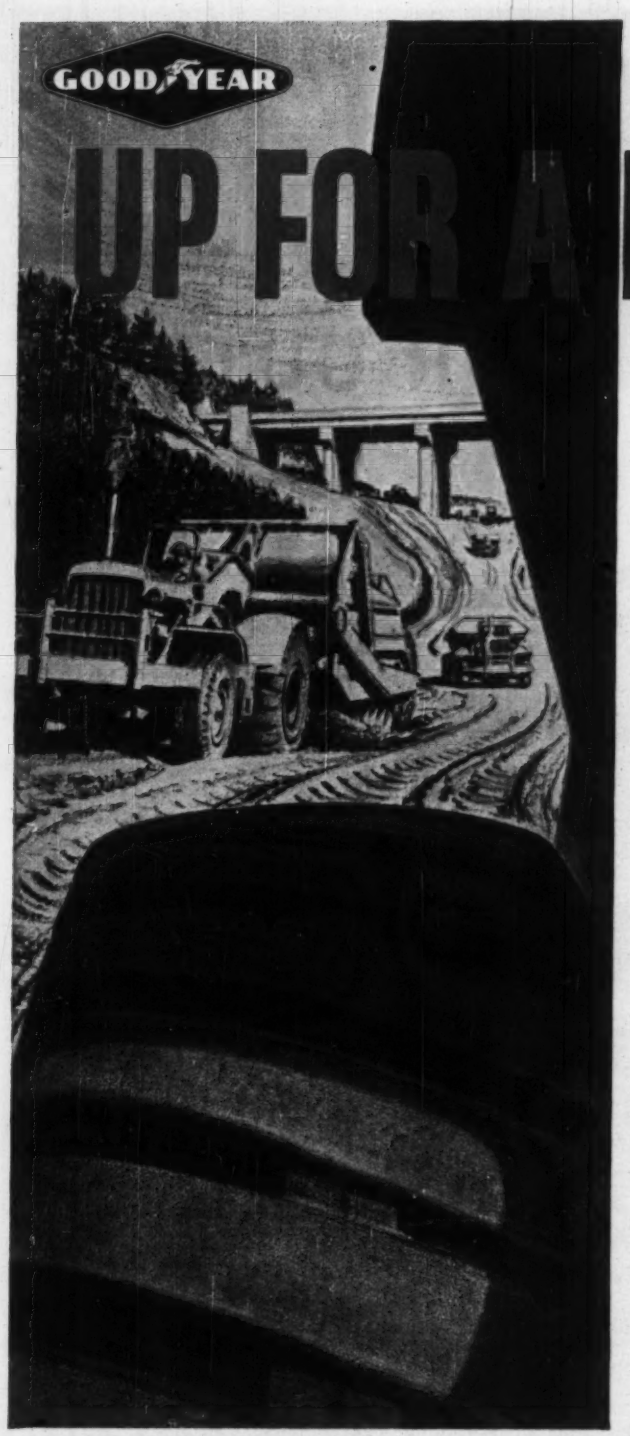
The Richter Scale used by U. S. Coast & Geodetic Survey to express the magnitude of an earthquake provides an indication of a quake's energy in ergs. Each of the scale's divisions, from 1 to 10, corresponds to a definite amount of energy. Also, each unit on the scale is 63 times larger than the one below it, i.e., a Richter 8 is 63 times a Richter 7. As to actual energy magnitudes, the Richter 8.5 reported as the maximum so far experienced in the Chile quakes, corresponds to about 10^{25} ergs. (or 7 x 10^{18} ft-lb).

For the Richter numbers, the energy is a computed figure based on the logarithm of the trace of the amplitude as recorded on seismographs at some location distant from the quake—for USCGS at Pasadena and Berkeley, Calif.

The Richter Scale measures earthquake magnitude, but not earthquake intensity as revealed in damage. The most commonly used intensity scales of this kind are the Mercali and the Rossi-Forel, which provide an indication of the effect on structures in the area of the epicenter. Thus a Richter 8 quake that occurs under the ocean and thus causes no damage to structures has zero intensity. Conversely a low magnitude quake, Richter 5, may have a very high intensity, causing great destruction because of the geology of the area or because the origin of the quake is near the surface.

Magnitude, as expressed by the Richter Scale, and intensity as given by the Rossi-Forel Scale, are, therefore, not directly comparable. It may only be stated that when a high Richter number quake occurs where structural damage can result the Rossi-Forel number will also be large. This is no doubt the case in Chile, although no Rossi-Forel numbers have been reported.

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



UP FOR A BIG BID?

Let Goodyear keep your tire costs down

FINDING THE WORK FACTORS—Goodyear Big-Tire Specialists are prepared to analyze your tire needs with an eye to keeping costs under control. These specialists will check the terrain, loads, climate, roads, schedules and speed problems that confront you, and can select the right Goodyear tires to help you solve them.

PUTTING BIG-TIRE KNOW-HOW TO WORK—From the world's greatest wealth of experience, Goodyear Big-Tire Specialists are uniquely qualified to help you. And they'll provide the best in tread and body designs to help safeguard your contract and your profits.

SETTING UP BIG-TIRE SERVICE—You say the word, and Goodyear Big-Tire Specialists will set up a tire-maintenance program at the job-site to help save you man-hours, machine-hours and useful tire life. In addition, Goodyear Contractor Service *will travel* with your job—handle all your tire maintenance and repair needs.

With BIG-TIRE PERFORMANCE Example: SUPER HARD ROCK LUG

Here's one of Goodyear's Big Tires for the Big Bid you have coming up. It's the SUPER HARD ROCK LUG, built for heavy loads and no roads to make the going easy. Triple-tough 3-T Nylon Cord for the greatest tire stamina, plus new, special cut-shrugging rubber compounds, make this tire a real cost-saver in the roughest off-highway service.

For details on this and other Goodyear special-duty tires, and the Goodyear Contractor Service, see your Goodyear dealer. Or write Goodyear, Truck Tire Dept., Akron 16, Ohio.

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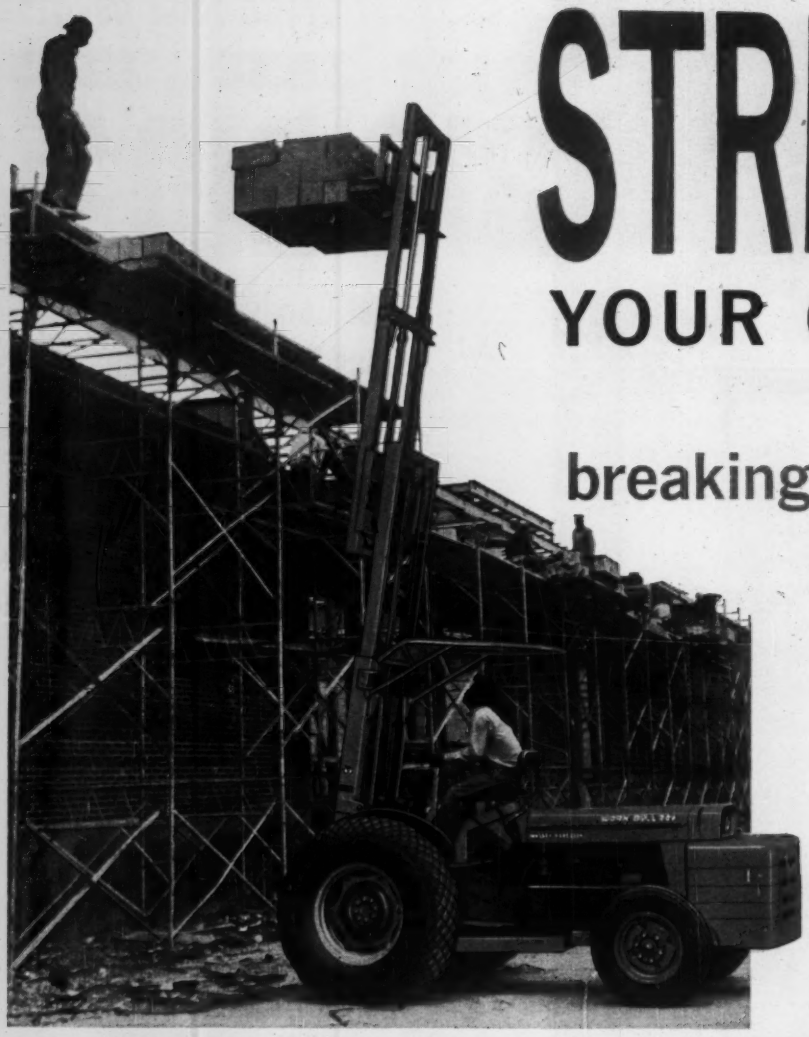
GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND



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YOUR OUTPUT
without breaking your back!

the MASSEY-FERGUSON 204 FORK LIFT

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What's more — with its high flotation and traction, it will go almost anywhere . . . on and off hard surfaces — in rough or muddy areas. And what a reach the 204 Fork Lift has! It can hoist materials to roofs and second-floor levels. And, with all its power and capacity, the agile 204 can "slide" into a load and quickly and smoothly discharge it with the dexterity of human fingers.

If this were not enough, the basic M-F Fork Lift can be many machines with its easy-to-change attachments — including dozer blade, load clamp, material bucket side shift, block tines, and log hooks.

Why Wait? — Set a Date — We'll Demonstrate!

MASSEY-FERGUSON INDUSTRIAL DIVISION
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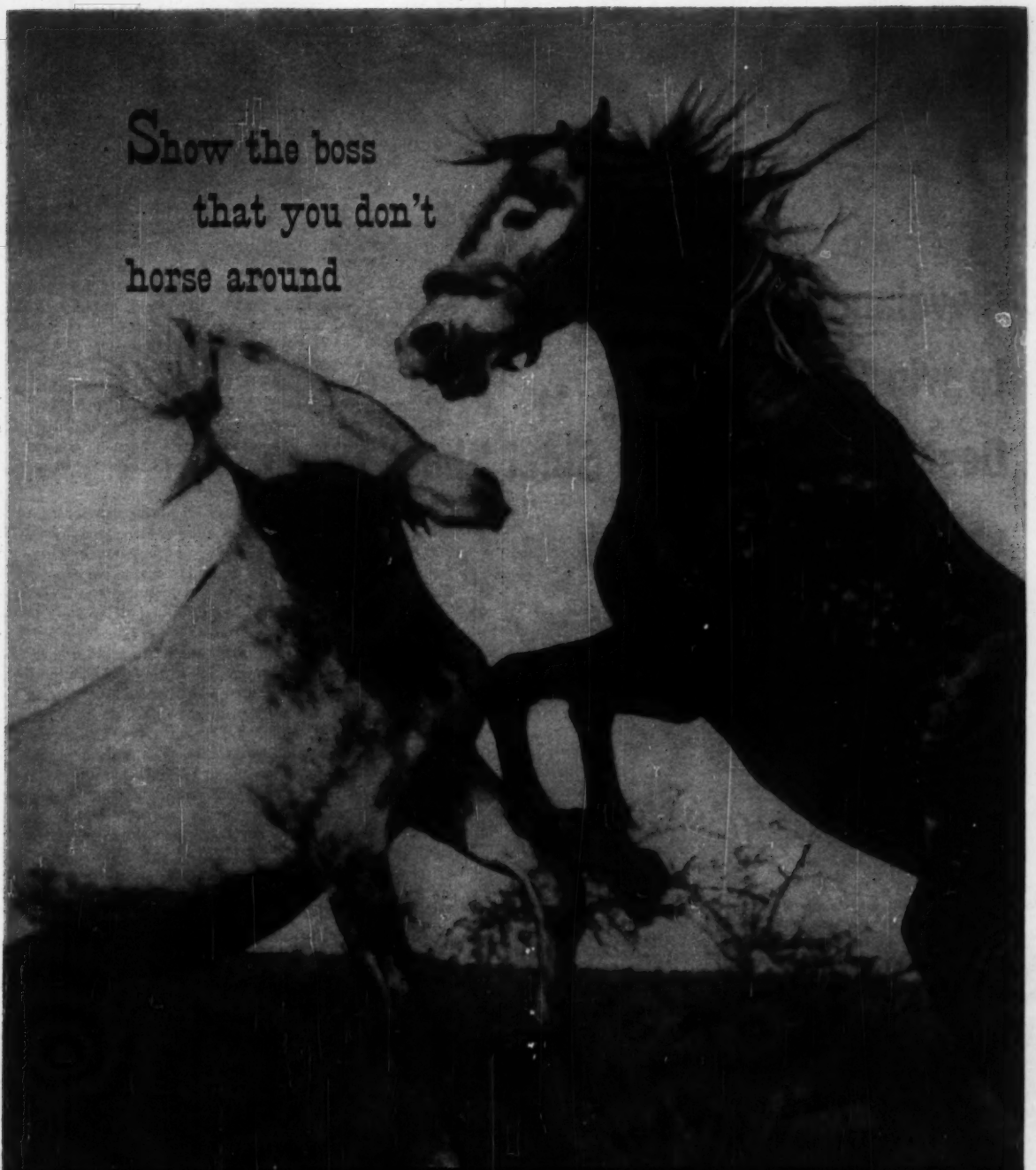
Producing Sizeable Power for the "Sensational 60's"



...when it comes to corrosion.

Start by using Allied Chemical 34Yc Cold Coating #134 and Cold Tar Paint #110. Both items offer high-quality, low-cost protection against metal and masonry corrosion. 34Yc is excellent for all surfaces exposed to highly corrosive conditions, extreme moisture, or acid and alkali fumes. It's also an ideal coating for tanks, pilings, structural steel, underground pipes and units. Coal Tar #110 is preferred for outdoor frames and posts, safety and sprinkler piping, transmission towers, general railroad work. If your industrial distributor is not currently stocking these products, write to Industrial Tar Products Department.

PLASTICS AND COAL CHEMICALS DIVISION
40 Rector Street, New York 6, N. Y.

Allied Chemical

Cleveland builds new piers to win Seaway traffic... Designing with USS Steel Sheet Piling saves time and money

Ready for Seaway Traffic. Cleveland's new West 6th Street Pier built in fast time with 2,252 tons of USS Steel Sheet Piling.

Great Lakes cities are competing with each other to build facilities to attract and service St. Lawrence Seaway traffic. The City of Cleveland was one of the first to start, and built the new West 3rd Street Pier and West 6th Street Pier to meet Seaway specification depths of 27 feet alongside. The West 3rd Street Pier is 710 feet long and 509 feet wide and has an area of 4.1 acres. The West 6th Street Pier is 697 feet long, 297 feet wide and has an area of 4.65 acres. Both piers are constructed of USS Steel Sheet Piling which is utilized to enclose the developed area. These piers may well be the forerunners of many similar structures being considered for Great Lakes ports.

The West 6th Street Pier is the newest of the two, having been only recently completed. For this job the engineers considered various types of structures but finally selected an anchored steel sheet pile bulkhead to enclose the area to be developed. Comparative bids proved this to be the most economical type of pier. What's more, it could be built quickly.

For maximum beam strength, Z-type steel sheet piling was chosen. The general contractor, Merritt-Chapman & Scott Corporation, Cleveland, Ohio, wanted quick deliveries and service . . . so they ordered USS Steel Sheet Piling. They used 2,252 tons of Z piles in 60-foot and 70-foot lengths. The steel sheet piling was driven to 33 feet of penetration beyond the 27-foot dredged depth. Side walls of the pier are retained with double channel wales and 3-inch diameter tie rod assemblies extending across the full width of the pier. The front wall is anchored with wales and the tie rods to batter pile assemblies incorporating concrete filled pipe piles. A novel fender system protects the pier in which cored rubber inserts furnish required resilience.

Theoretical assumptions relative to horizontal pressures on earth retaining structures are still undergoing investigation by scientists. In order to assist in the development of more accurate knowledge of this subject, permanent strain gauges were installed at critical points in the piling.

The design of these structures was under the direction of W. J. Rogers, Director of Port Control, and J. H. Rowland, Commissioner of Harbors, City of Cleveland. The Osborn Engineering Co. of Cleveland were Consulting Engineers.

When you need any type of steel piling, steel sheet piling, H-piles, or pipe piles, call the nearest United States Steel office, or contact United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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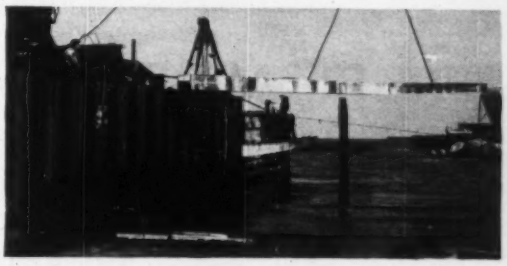
Air view of the 202,257-square-foot West 6th Street Pier and to the left the 177,800-square-foot West 3rd Street Pier. Both piers constructed by Merritt-Chapman & Scott.

USS Z Piling offers strength and economy in building piers and bulkheads.



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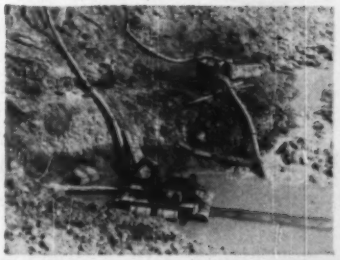
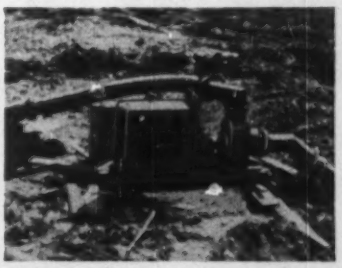


Two Marlow self-primers pump water from a collecting basin up a 30-foot bank.



This Marlow pump operated on a 24-hour schedule to control seepage water.

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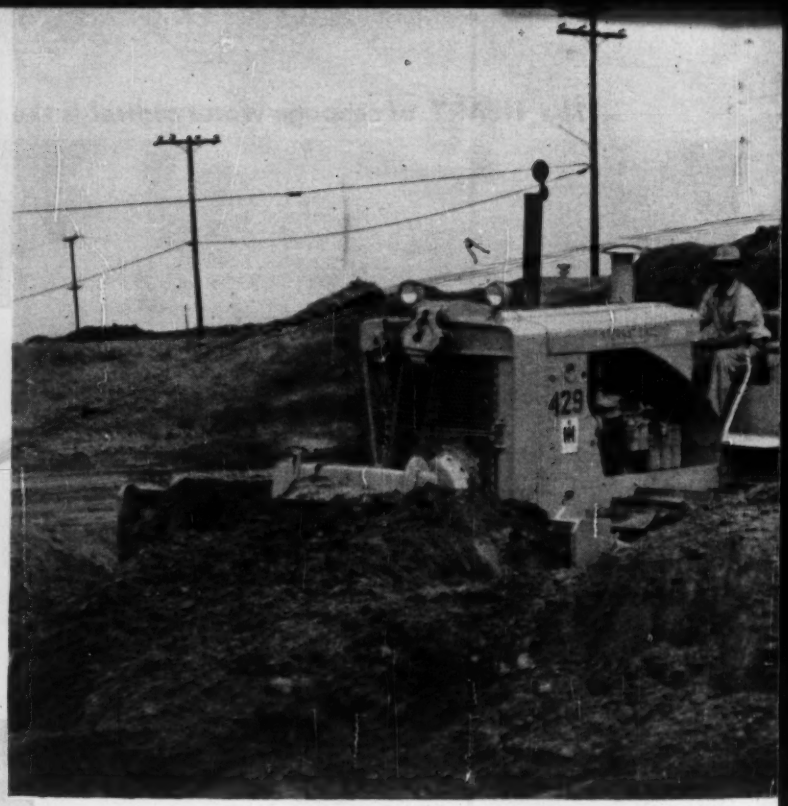
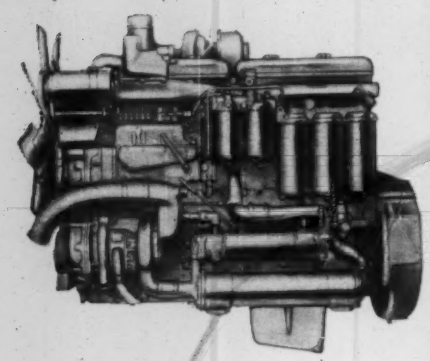
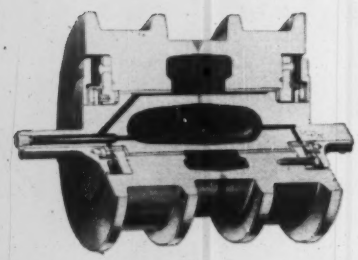
Three new International TD-25's of contractor V. E. Posey's fleet team up preparing home sites from a mountainside...near San Diego, California. One "25" operator comments: "The power is there, but big engine 'sound and fury' are just about gone!"





Big power "plus" of the new TD-25 is the new direct-start, 6-cylinder turbocharged International DT-817 diesel engine. Tri-metal crankshaft bearings; valve rotators; dry-type air cleaner; externally-mounted, gear-driven oil and water pumps—all are typical DT-817 long-life, high-output features!



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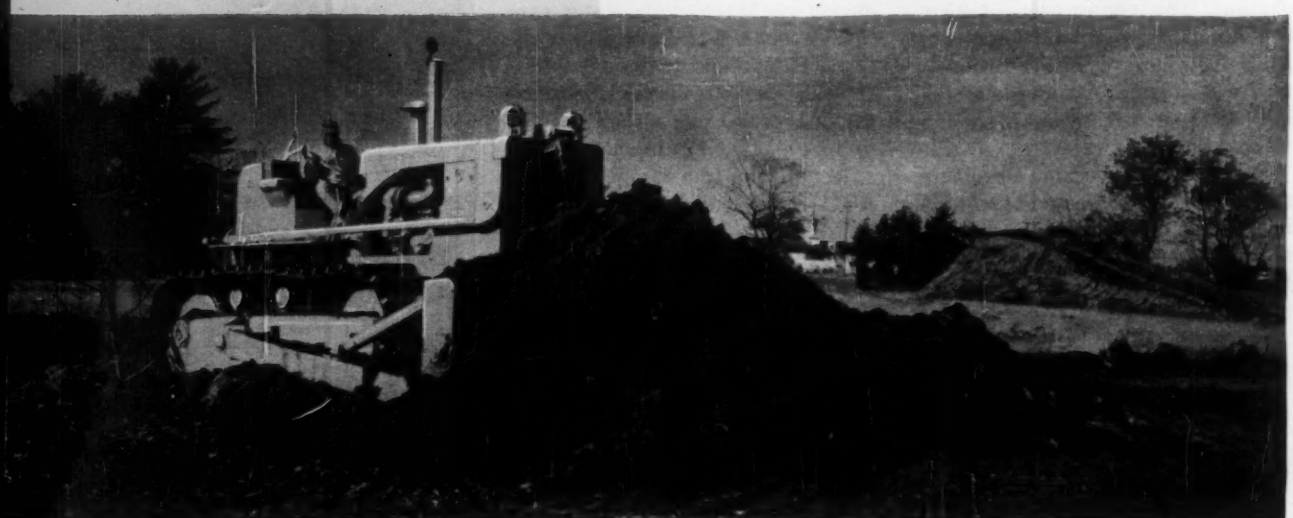
Thick-shelled International Dura-Rollers have king-sized lube reservoirs, positive sealing, and exclusive relief-passage protection from over-lubrication. These *minimum maintenance* track rollers give you practical 1,000-hour lubrication intervals!

Keep full loads on the move full time with exclusive Planet Power-steering. Full power on both tracks, full time, is the answer! And Hi-Lo on-the-go power-shifting lets you match power to condition, instantly, to keep loads "on the move"—and increase speed where practical! This "25" belongs to Berke Moore Co., Inc., Boston expressway contractor!



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You get combined Planet Power-steering and Hi-Lo on-the-go, power-shifting exclusively in the new International TD-25. And you get this basic, built-in design advantage in your choice of torque-converter or synchromesh model!

With this and all its other big advantages, the TD-25 can outearn other big rigs up to 50%—on push-loading, bulldozing, or pulling big drawbar tools such as a shale-shattering ripper!

No "dead-track drag" or "gear-shift lag"!

Planet Power-steering gives you full-time "live" power and traction on both tracks, to make full-load turns—and to eliminate load-limiting "dead-track drag." And Hi-Lo on-the-go power-shifting instantly matches power to conditions to end load-losing "gear-shift lag."

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THE CONSTRUCTION WEEK

ADMIRAL WORKS FOR AIR FORCE—Retired Rear Admiral Joseph J. Jelley, one-time chief of BuDocks, is a Colorado Springs representative of the A-E named to design the Air Force Academy stadium. Air Force Academy Foundation, Inc., with $1 million of the $3.5 million it needs for the stadium already raised, has engaged Praeger, Kavanagh & Waterbury, of New York City. Architect Gordon Sweet of Colorado Springs is also associated, and Skidmore, Owings & Merrill, of Chicago, will be consulting architects. Groundbreaking is due this fall; first kick-off for the '62 fall football season.

FOR WANT OF A LICENSE—Pay raises are being held from some 800 engineers of the New York State Department of Public Works. They lack professional licenses and cannot advance beyond the grade of assistant civil engineer without them—whatever their competence. DPW, budget and civil service people are considering the situation.

EXPANDING MARKET—Ownership of a second home is expected to be a distinguishing mark of the 1960s, according to the National Association of Real Estate Boards. The organization's research department says, "A construction level of 200,000 vacation homes a year may easily be reached by the end of this decade."

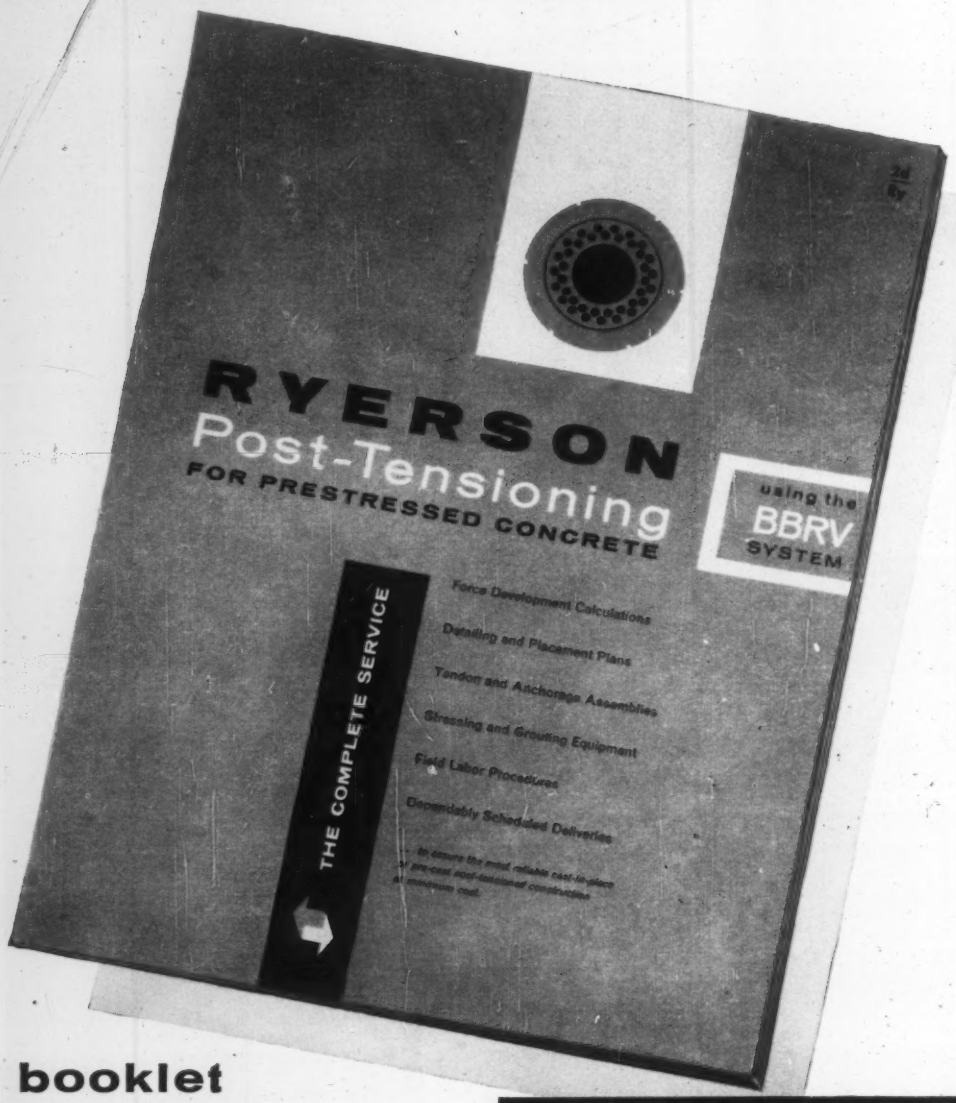
ANGELS COMING?—A few major financial institutions may be interested in buying some of a $200-million bond issue that would finance construction of the stalled Chesapeake Bay bridge-tunnel. Estimated cost of the 16.5-mile crossing is $144 million. A joint venture of four contractors holds the contract, but it doesn't become effective until the bonds are sold.

ENGINEER TALLY—The National Science Foundation, interested in a complete register of engineers and their specialties for use in national emergencies, has been told by Engineers Joint Council that there might better be a comprehensive study of the profession that would establish the nation's engineering resources. Or, if the existing "finder's list" of 18,000 names, which EJC maintains for NSF, is inadequate, regional finder's committees might be an improvement.

BIG JOB IN FLORIDA—A $16.8-million revenue bond issue was sold last week by the Florida Development Commission to finance construction of a 15.2-mile toll causeway and bridge system near St. Petersburg.

POLITICS ON A HIGH PLANE—California state officials may build a penthouse residence for the governor atop a proposed state office building in Sacramento. Advantages over a White House-type mansion: saving of land-purchase cost for a site; proximity to the state capitol; privacy.

DETAILED INFORMATION ON POST-TENSIONING



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WASHINGTON OBSERVER

- Conventions may revive construction bills
- Can U. S. force sewage plant construction?

● **The post-convention session of Congress will have more than just a few big items of hold-over business to tackle.** You can expect the political conventions and the party platforms they build to toss a whole bundle of issues back at Congress to be debated for the political glory of the candidates. The overwhelming control over what the House and Senate do in August will be in the hands of the Democratic and Republican nominees for the Presidency.

A few big, hot construction issues will be hanging fire. The housing bill will be up for debate; schools will remain unsettled; so will the minimum wage bill and situs picketing.

But additional political fireworks can be expected from post-convention reconsideration of urban renewal, depressed areas aid, public works and, of course, the question of future highway construction. No matter how thoroughly some of these issues might have been covered through the frenzied hours before recessing for the conventions, members acknowledge they will do a lot more debating and voting when they come back.

Military construction is pretty well set. The House agreed to a $118.7-million increase made by the Senate to bring the total outlay for the new fiscal year to $995 million.

Public works money in the area of $1.5 billion will be apportioned. More than 30 new starts will raise the total of new construction projects to around 100.

On-site picketing and minimum wage legislation were delayed. But once the platforms are written in Los Angeles and Chicago, and the candidates are named, renewed pressure will be put on the Congressmen. The House did pass a modest minimum wage bill—increasing the hourly rate from $1 to $1.15 and hardly disturbing regular wages and hours procedures—but campaign needs of either candidate could mean new provisions.

—

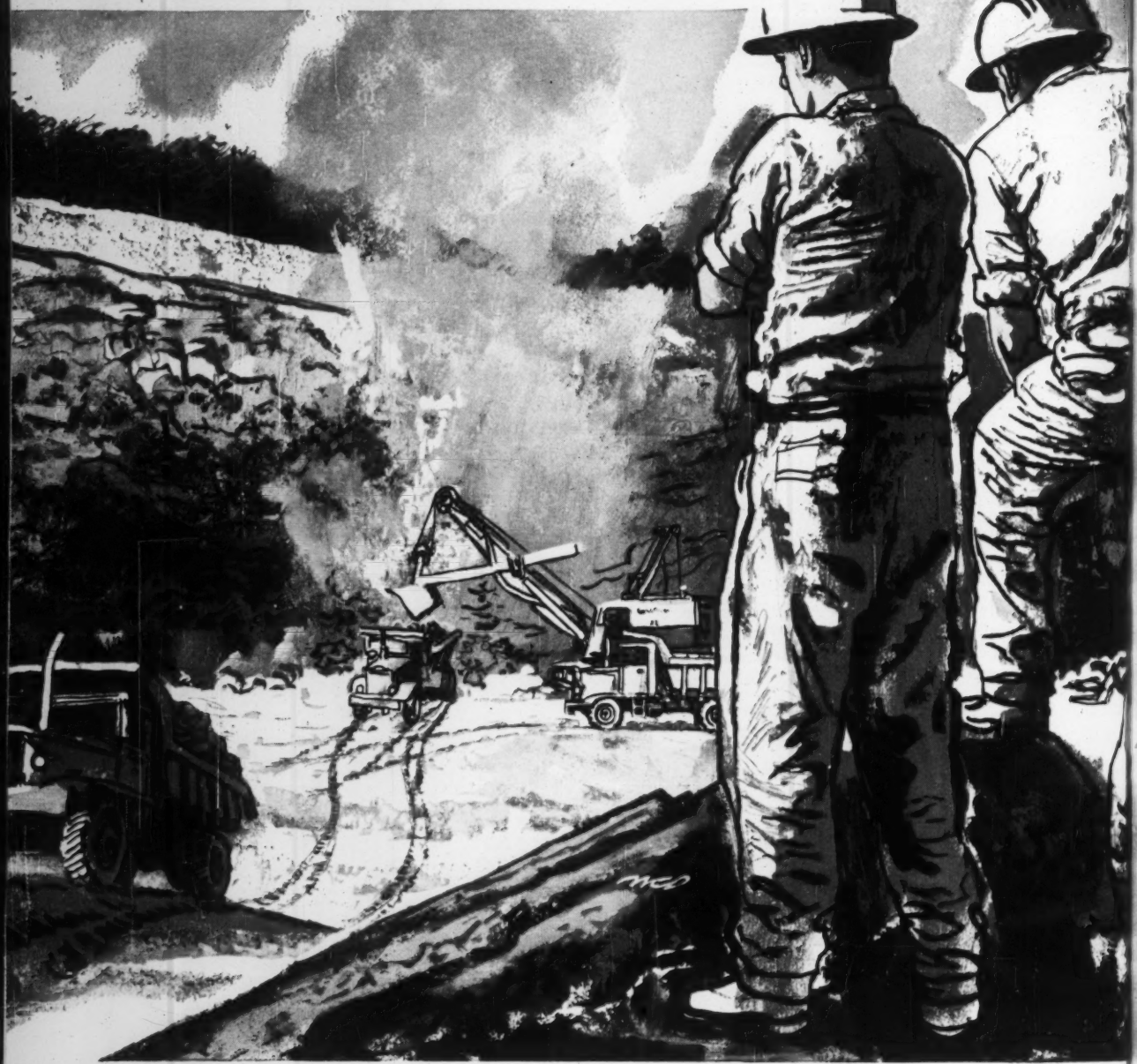
● **The issue of federal authority to compel cities to build sewage treatment plants may be coming to a head.** Secretary of Health, Education and Welfare Arthur S. Flemming has signed an order which directs Kansas City Mo., to build facilities. The question now is whether city officials will go along. If they refuse to act, federal court action could be taken to get the city to comply.

Secretary Flemming officially concluded that the city and industrial plants around it are seriously polluting the river. He has a timetable for getting needed facilities functioning—which would require an estimated $18 million to $20 million at Kansas City, Mo.

Kansas City may avoid the legal test if it decides to float a bond issue—or impose a sewer charge to finance the treatment works.

A similar situation at St. Joseph, Mo., has resulted in failure of the voters to approve a bond issue. City officials want to re-submit it, but the City Council won't agree.

How **protection in depth** helps cut compensation costs



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ENGINEERING
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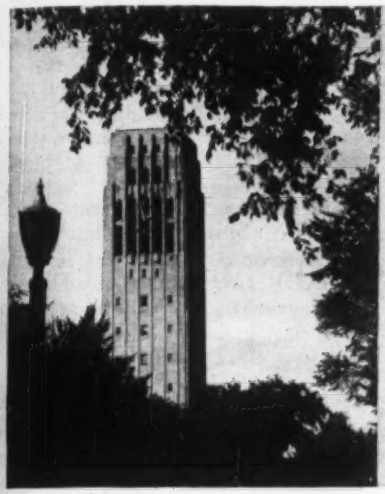
Engineering educators propose:



1. **Four years of undergraduate, pre-engineering courses, but . . .**
2. **No professional degree before completing a fifth year for a masters in civil engineering.**
3. **Eventually, more CE's with seven years of school and a doctorate.**

How to Teach Civil Engineering

This week in Ann Arbor, Mich., a conference of some 200 civil engineers –90% of them educators–is deciding how to vote on a resolution (see above) intended to shape future teaching of civil engineering.

Its whereases don't come right out and say so, but the reason behind the resolution is simply and sadly that the engineering profession is not getting the quality or quantity of civils it might be getting.

And as civil engineering loses brain power to other branches, it is the construction industry principally that stands to suffer. For almost all CE's engineer things constructed, whether in private practice, government, contracting, or whatever.

The conference is the third and final in a series organized by The Cooper Union and co-sponsored by the American Society of Civil Engineers and the American Society for Engineering Education.

This wind-up session, leading up as it does to a vote on the significant resolution, was planned by a 27-man group that conferred last January and February and composed the proposed resolution.

Funds from the National Science Foundation this week paid the way for the 139 official (voting) delegates to the final conference at the centrally located University of Michigan. Voting delegates were invited from every institution in the U. S. with an accredited civil engineering curriculum.

Perhaps properly for a conference planned by educators, it is the quality and not the quantity of future civils that has been stressed from the start of this Cooper Union venture. But the harsh fact of life is that some among the educators involved may have no jobs if the continuing drop-off in civil engineering enrollments in some places is not arrested and reversed. The educators have seized upon curricula improvement as their best bet for changing civil engineering with the times and convincing more top students that this branch of engineering is for them.

Concern over how to teach engineering is not new.

In 1955 the so-called Grinter Report came out as result of a major 3-year study within the American Society for Engineering Education. The 46-man committee that produced this report represented all branches of engineering and did not specify particular needs of the civil branch or any other. It came up with an evaluation of engineering education that stressed need for the scientifically oriented curriculum. It made specific recommendations as to the implementation of its finding, but just how much influence it had on civil engineering teaching is hard to say.

In 1957 a Task Committee on Professional Education within the American Society of Civil Engineers filed a report based on a four-year study. It concluded that the profession favored a five-year curriculum, but it shied from recommending a general move to five years. It stressed the need to improve the quality of civil engineering education. But it is doubtful that the ASCE report in itself changed many curricula.

CE curricula have been changing–perhaps mostly in response to advances in the basic and engineering sciences. Still, the general situation remains: four years for a bachelors degree in civil engineering.

This week's conference in Ann Arbor could do more than any past studies or recommendations to shape the teaching of future civil engineers–depending on how the vote goes on the proposed resolution and how forcefully its recommendations are then carried forward.

The effect would be to establish pre-engineering curricula leading to an unspecified B.S. after four years, then to offer a masters as the first degree in civil engineering after a fifth year of professional or graduate work. (Their resolution doesn't say so, but its authors intend that two more years, for a total of seven would lead to the doctorate for increasingly more civil engineers.)

The undergraduate work would consist of three years' application to an interchangeable core of studies–interchangeable among all the branches of engineering. It would include "humanistic-social studies," math, basic sciences and engineering sciences. The fourth year would be an even split between electives and required courses of a civil engineering nature (such as fluid, structural and soil mechanics). The fifth year, for all who'd aspire to the masters in civil engineering, would be professional, graduate level, civil engineering work.

Surprisingly enough, the core of the

CONFERENCE LEADER WALLACE —"We're scraping the bottom of the barrel."

proposal, the resolution itself, was hammered out by the planning committee at the first of its two three-day meetings at Cooper Union's engineering camp. A steering committee of nine men had met in the spring of 1959 to consider Cooper Union's proposed program of conferences, but the 27 who made that first conference started from near scratch and came up with a resolution only one of their number could not support.

The second Green Camp conference was devoted almost entirely to planning the third (this week's) conference. Who should be invited and who should be allowed to vote on the resolution had to be established.

In addition to the official (voting) delegates, supernumeraries were invited and came from several engineering schools. A small representation of non-educators arrived at the Michigan Union, too—representatives of the Associated General Contractors, ASCE and a couple of federal government agencies.

It was not the hope of the conference planners to promote attendance of non-educators, but they hoped to attract attention of the civil engineering profession to the conference. The profession's support for the resolution will be sought if the educators themselves adopt it.

Conference procedure is to present the thinking of the planning group, hear discussions by those not in on the planning, then vote on the resolution. Talks began Wednesday; the vote comes Friday afternoon.

Prime mover behind this conference was Prof. Felix A. Wallace, who heads up the civil engineering department and is assistant dean at Cooper Union in New York City.

The Cooper Union—endowed as it was by Peter Cooper to be a free, scholarship school—has peculiar problems that pushed Professor Wallace into his proposal to NSF for this study of CE education.

Cooper is constituted to take 100 freshmen each year divided evenly among its civil, electrical, mechanical and chemical engineering departments. And because it is tuition free, it has its pick from among the top 2% of New York City's high school graduates.

The problem: Finding 25 who want to study civil engineering.

The top 100 applicants would choose electrical engineering, says Professor Wallace. "We're scraping the bottom of the barrel to get civils."

Professor Wallace is a realist. He realizes that there is much more that needs to be done to motivate top high school students toward civil engineering careers—more than manipulation of curricula.

But he sees clearly the loss of prestige of his CE curriculum under Cooper Union's unique situation for comparison with the three other branches, and he hopes that improvement of CE teaching will improve the quality of those entering the profession if not the quality or quantity of those entering the schools.

He's a realist, too, about the possibility that his planning committee's resolution may be too much for the full conference to swallow within the two days it will have at the University of Michigan. He likens his frame of mind to that of the practical politician, who knows the difficulties of gaining general acceptance for new ideas.

Felix Wallace will count votes hopefully as the conference ends.

AASHO Defers Approval For Expanded Research

The American Association of State Highway Officials will wait until September to pledge its financial support to the $34.5-million expansion program the Highway Research Board proposes for 17 top-priority areas.

At its summer meeting in Maine last week, AASHO's 19-member executive committee deferred decision on state participation in the proposed 38% enlargement of current highway research until September when the state highway departments will be closing out their shared expenses for the $23-million AASHO road test project in Illinois.

With two years of test-road research ending on October 31, HRB will meet in mid-September to wind things up.

At that time, too, AAHSO hopes to endorse a proposed continuing research fund to which the state highway departments would make uniform annual contributions.

Postponement of the AAHSO decision until September is expected to allow time for some state highway officials to accept the necessity of intensified and broadened research. Most state administrators see the need and the value now, but a few still regard money spent on research as wasted. There is no doubt that AAHSO will adopt the continuing research fund proposal and will support HRB's augmented program. But unanimous acceptance, if it can be gained, will be preferable to overruling a small minority.

Loans for Mass Transport Await Return of Congress

The pre-convention recess of Congress stalled for the time work on a bill to establish a $100-million loan program to help urban communities improve their mass transportation.

The bill would authorize loans for construction of highways, subways and new transport facilities as well as for purchase of busses and other equipment.

A second feature of the measure would provide matching federal-state grants to the communities to aid in the study and development or better transport systems.

The bill is strongly supported by urban mayors, but has run into opposition from the Administration. The Administration favors the planning grants but wants the loan program held up until planning studies are finished.

Work also has been halted for the convention recess on another transportation bill for the District of Columbia. It would set up a transit development agency for the Washington area.

Both bills will be reconsidered when Congress returns in August.

Will the States Step Up Awards?

- **Many states are entering fiscal '61 with federal-aid money from fiscal '60 still unobligated.**
- **This will cushion the impact of U. S. action doubling the spending allowance for the first quarter.**

Many state highway departments are sliding into fiscal 1961 this week with an embarrassment of riches.

That's the result of the announcement by the Department of Commerce last week that states could obligate half of their fiscal 1961 federal-aid money in the first quarter, between July 1 and the end of September. It amounts to a little over $1.4 billion (ENR June 30, p. 19).

The states would have found themselves with even more money on their hands had not House conferees turned back an attempt by the Senate to get additional ABC road money out of the Highway Trust Fund.

House members successfully blocked a Senate amendment that would have added $200 million over two years to apportionments for primary, secondary and urban (ABC) roads—but at a rate of two federal dollars for every one state dollar, instead of the usual one-for-one ABC split. The amendment was an emergency measure aimed at areas of high unemployment. The ABC bill calls for $925 million over two years, beginning in fiscal '62.

In all this politically inspired pulling and hauling, of course, the states and highway contractors have little to lose. The question is, how much will be gained? At the beginning of this month a number of states still had large balances of unobligated federal-aid money from fiscal 1960. This money will be carried over into the new year. To those states, the extra funds flowing out of Washington in the first quarter may be like a gift of ice cream to Howard Johnson.

Including the 1961 apportionment, states with more than $100 million in unobligated federal-aid highway funds as of June 1 are California, Georgia, Indiana, New Jersey, New York, Texas and Pennsylvania. (Pennsylvania is the only state with an unobligated balance of more than $200 million.)

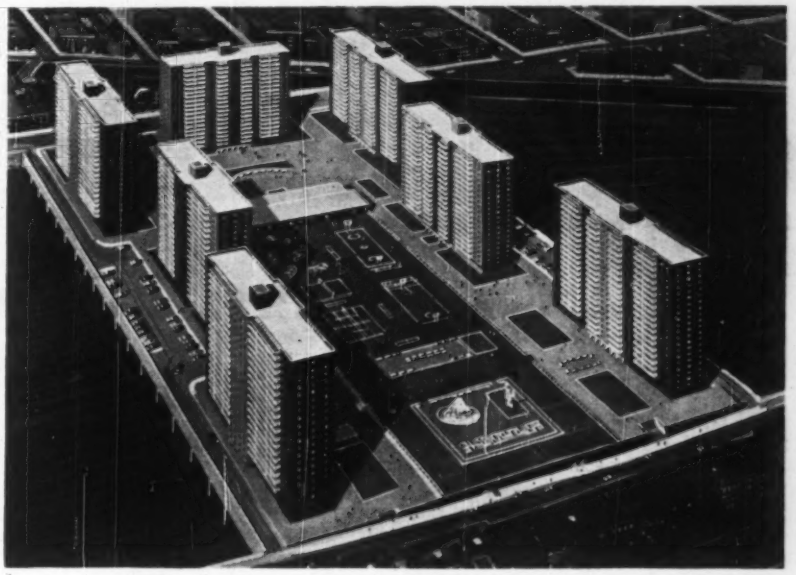
Eighteen other states had an unobligated balance of between $50 million and $100 million. They are Alabama, Arkansas, Illinois, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, North Carolina, Ohio, Tennessee, Washington, West Virginia and Wisconsin.

Although the size of the balance is not the only factor in a state's ability to take advantage of additional matching funds, it appears that a number of states will gain little by the maneuvers in Washington.

Although BPR is in no position to comment negatively on an action by the Secretary of Commerce, the bureau seemed to be taken by surprise.

BPR was just beginning to get state contract lettings on the relatively uniform quarterly pattern called for by earlier policy decisions. It had about caught up with the emergency road-building program of a couple of years back, which had suspended the pay-as-you-go schedule. It was that drain on the Trust Fund that forced BPR to institute strict controls on obligations last October. Intent of the controls was to keep the flow out of the Trust Fund at an even pace until there was sufficient backlog to cover periods of peak activity.

While Secretary Meuller says the speed-up in '61 apportionments means no change in the quarterly controls system, it does represent a departure, ascribable, perhaps, to election-year enthusiasm.



Apartments Over a Railroad Yard

A $96-million apartment project will be built above a railroad yard in the Bronx section of New York City.

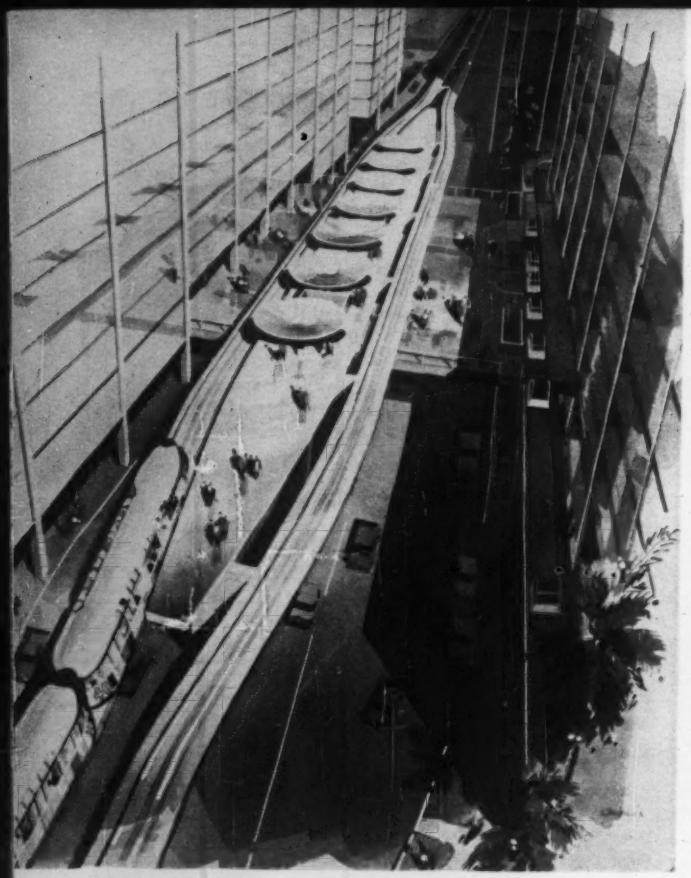
The railroad yard is 40 ft below street level. Twenty-two 20-story apartment buildings will be erected on a concrete platform that spans the tracks below and is flush with the street. The concrete base will be supported on columns that have been sunk between the tracks.

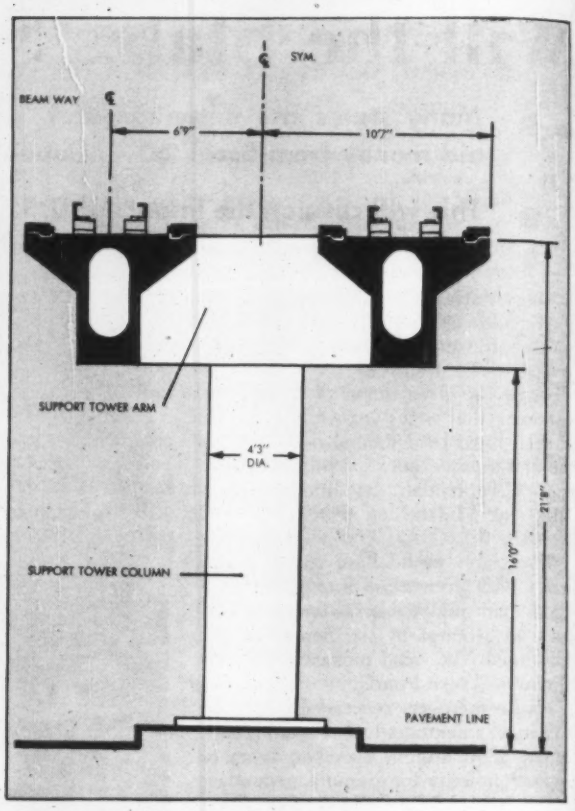
The project will be a middle-income apartment cooperative for 5,206 families. Its sponsors—the Amalgamated Meat Cutters and Butcher Workmen of North America—have leased the air rights over the 40-acre area from the New York Central System, which uses the yards for maintenance and storage of railroad cars.

The railroad will receive $750,000 annual rent upon completion of the project for the duration of a 60-year lease.

The development, to be known as Concourse Village, will be built in three sections. Construction of the first seven buildings, containing 1,686 apartments, is scheduled to start this year. The remainder of the project will start before the end of 1961.

Harry M. Price is architect. Disstasio & Van Buren are the engineers. Cauldwell-Wingate-Alvin Benjamin is the contractor. All are from New York City.





Rubber-tired trains would go 80 mph on . . . concrete tracks, elevated most of the way.

For LA Commuters: 'El' on Wheels

The Los Angeles Metropolitan Transit Authority is studying a proposed rapid transit system for the area that would be elevated for two-thirds of its 74.9-mile length.

The system, recommended by Daniel, Mann, Johnson & Mendenhall, Los Angeles architect-engineer firm, would carry air-conditioned, rubber-tired coaches in and out of the city at twice the speed of average existing transit systems.

The DMJM transit system would have four lines and cost $529.7 million. Lightweight vehicles would run in trains of two to six cars on concrete tracks.

Elevated structures would carry 51 miles of the system's total length. A line of single columns in a narrow center median would support two sets of tracks. The A-E firm recommended reinforced concrete for construction.

One-half the length of the elevated sections would run over city streets, 14.8 miles over railroad right-of-way, 7.3 miles over freeway shoulders and 3.6 miles over rights-of-way on private property to be acquired.

About one-third of the proposed system's length, 21.6 miles, would be at grade level. Most of this would be along right-of-way of the Pacific Electric Railway Co.

A total of 2.3 miles of the suggested Los Angeles transit system would go underground. There would be tunnels in an area where city streets aren't situated adequately for an elevated structure and where surface right-of-way would be too expensive.

A subway system is entirely possible for Los Angeles, but it would cost two to three times as much as overhead facilities that offer the same service, say the consultants.

Irvan F. Mendenhall, who presented the recommendations to the authority, said that DMJM has been asked to plant a system that would be the most economical to construct and operate to fulfill the requirement for a self-liquidating system that might be built within the limitations of revenue bond financing. DMJM spent eight months of study on the project (ENR Feb. 11, p. 24).

"In all cases our recommendations have been made on the basis of the most economic engineering alternate," said Mr. Mendenhall.

The design of coaches for the system represents a composite of conventional train practice and bus and air frame techniques. The coaches will ride on pneumatic tires. Horizontal pneumatic tires bearing against a raised center section of the track structure (see illustration) provides guidance.

Auxiliary steel wheels of standard gage spacing will serve as safety wheels and be used for switching operations in conjunction with standard rail switches.

The trains would operate at speeds up to 80 mph. With one-mile intervals between stations, they could average about 40 mph, including station stops. This is about twice the average speed of transit systems in the U.S. and abroad.

The DMJM report recommends three kinds of stations, central business district stations, medium density stations and low density stations. Platform length for the central business district stations would be 448 ft, large enough to meet the anticipated growth of the system to eight-car trains.

Stations along the four lines would be coordinated with bus lines that would serve as feeders and distributors of passenger traffic.

The four lines would serve Covina, Santa Monica, Long Beach and Reseda. The average running time from a station proposed for Eighth and Hill streets, in downtown Los Angeles, to the four terminals is calculated to be: Reseda—36.8 minutes; Santa Monica—27.6 minutes; Covina—33.4 minutes, and Long Beach—31.4 minutes.

C. M. Gilliss, executive director of the Los Angeles Metropolitan Transit Authority, said the authority will study the report and consult with persons interested in transportation and in metropolitan area government.

"There was and is no intention that this report be adopted immediately as an authority plan," said Mr. Gilliss. "The authority needs, first, the reaction and the comments of the people and their representatives. Then it can consider adopting a plan incorporating the best of all practical ideas—the people's ideas as well as the professionals'."

Mr. Gilliss estimates that by the time a finished plan is approved and a financial study made it would be the latter part of 1962 or early 1963 before the first spadeful of ground would be broken for the new system.

The authority, before beginning work on a new system, would ask the state legislature to create a transit district that would make it unnecessary to get individual approval from each community involved in the system.

DMJM studied two other transit systems, a supported monorail and a suspended monorail. The suspended system was found to cost more than the supported systems and posed problems in sway control that require further development work in testing.

Switching of both types of monorail systems proved to be more complicated than that of the approved system, which uses a conventional switch.

The four-lane system is regarded as the initial phase of a 150-mile system that would be needed in the future, probably within 20 years, and would include Santa Ana, Inglewood, Pasadena and San Fernando.

A secondary passenger distribution to connect with main line facilities at downtown stations was recommended for the central business district. DMJM advised that final selection of this system should not be made until the main system was built.

The A-E firm recommended 600-volt direct current traction power with four 125-hp electric motors per car.

A system of automatic control would provide for positive speed control through curves, switches and other critical points.

The planners estimate that the structure and roadbed for the system will cost $155.9 million, the greatest single expense. Rolling stock will cost about $75.9 million, stations $41.8 million.

Gorge High Dam Idling Along

Water spills through openings in Seattle City Light's Gorge High Dam on the Skagit River signaling shutdown of the powerhouse until about the middle of July.

Closure is allowing workmen to seal the old intake tunnel with a concrete plug 20 ft in diameter and about 15 ft thick. Flow is at the rate of about 6,000 cfs through an 8-ft-dia temporary outlet, on the left; twin permanent outlets on the right; and a low section of the dam, 50 ft across.

During shutdown the contractor, Merritt-Chapman & Scott Corp., New York City, will continue concrete placement, now within 15 ft of the crest of the 300-ft-high dam.

Bye Bye Big Bonus Bonanza

Trouble with electrical equipment is eating into bonus money Merritt-Chapman & Scott Corp. seemed to have had in the bag at Priest Rapids Dam on the Columbia River.

Only last October, M-C&S was 16 months ahead of schedule on the $98-million project and ready to cash in on the bonus of $1,300 a day for every generating unit on the line before the end of the 1,900 day construction period.

Then came trouble.

On April 25, a transformer failed. English Electric Co., the subcontractor that supplied five transformers, shipped the faulty unit back to the factory in England. The other four will be sent in relays to the English Electric plant in Ste. Catherines, Canada, for some design modifications.

Although it appears that M-C&S will have no trouble meeting the deadline—about 440 days away—these delays will certainly make a sizable dent in the estimated $4 million to $5 million in bonus money anticipated last fall.

As is usual where bonus payments are involved, there are stiff penalty stipulations in the contract. Should the contractor for some reason exceed the 1,900-day period, there is a $3,000-a-day charge for each generator not producing power. The first of Priest Rapids' 10 units went on the line in October (ENR Oct. 8, 1959, p. 23).

E. B. Gibbons, manager of the Grant County Public Utility District, owner of the power project, says that inspection of the first transformer revealed extensive damage to the winding of one phase. Apparent cause was high induced currents in the static shield with resultant deterioration of the solid insulation between high and low voltage windings.

English Electric has offered to extend the guarantee period on the five transformers from one year to five, and to supply a spare transformer during the extended guarantee period.

Mr. Gibbons emphasized that adoption of the "remedial plans" is completely up to M-C&S, and that PUD expects "all equipment, when installed to meet all requirements of the contract documents."

Trouble also has been encountered with generators supplied by the British firm. Three generators, manufactured in Scotland for English Electric, have shown excessive heat rise, believed to be the result of insufficient stator core iron. These units will be modified at the damsite, while a fourth generator—made in the same plant but not yet on the line—will be modified before going into service.

The other six units manufactured in England have met heat requirements, but the air systems will be altered to bring them even further within PUD limits. The British sub, has offered to extend the one-year guarantee period on the four units built in Scotland to two years.

The PUD had hoped that the last generating unit would go on the line this September but a delay of several months now looks unavoidable.

Standards Hit by Restraint Charge

- **ASTM rescinds specifications for asbestos-cement pipe after foreign producers complain to U. S.**
- **Society moves into new fields at annual meeting; approves specs for higher-strength steels.**

Complaints that two specifications of the American Society for Testing Materials are in restraint of trade made the society's 63rd annual meeting more than the usual six-day shirtsleeve work session.

The ASTM meeting drew more than 3,000 engineers and researchers to Atlantic City last week. They held some 1,000 committee meetings and technical sessions and participated in ASTM's plunge into new fields.

The restraint-of-trade complaint was made by the U. S. Attorney-General against two specifications under the jurisdiction of Committee C-17 on Asbestos-Cement Products. The specifications are C296-59T and C428-59T, for asbestos-cement pressure and sewer pipe. The objections centered around revisions made last year—in particular a cautionary note recommending that the pipe be tested at the point of use.

The complaint was reported to have been instigated by foreign producers of asbestos-cement pipe.

This is the first time such a charge has been made against ASTM. The society, in an effort to cooperate with the Attorney-General, requested Committee C-17 to reconsider the troublesome revisions. The committee voted to rescind them temporarily while a review is being made.

Meanwhile, other committeemen expressed concern over the implications of the intervention of the Department of Justice. They wondered how a specification prepared by representatives of producers and consumers and available for voluntary adoption by consumers everywhere could restrain trade—especially since users are free to use all or part of the specification and to add additional requirements, if desired. Also, it wasn't clear how requirements that specific tests be made and recommendations that the tests be executed in field or factory would restrain trade.

ASTM took a major step into a new field at this meeting by organizing a Division of Materials Sciences. The division will concern itself with "interdisciplinary approaches to the better knowledge of materials." Its activities will be related to subjects that are of interest to many of the society's technical committees.

The new division was not long in getting started. It sponsored two symposiums at the annual meeting—one on recent progress in material sciences and one on the nature and origin of strength of materials.

ASTM also set up a new technical committee in the construction field—E-17 on Skid Resistance. It will set up standards, sponsor research and develop test methods for determining traffic surface slipperiness.

The relatively new practice of using nuclear instruments for field determinations of soil density and moisture content was critically reviewed in a symposium sponsored by Committee D-18. Three of the speakers reported reasonable accuracy with nuclear soil gages compared with check values obtained by more conventional methods and oven drying. When field results were plotted, nuclear gages gave less scatter than the standard sand cone methods.

However, unless intensive tests are required in relatively limited areas, the economy of nuclear devices is open to question, according to some observers. They are handicapped by initial cost, weight of associated equipment and necessity for training operators.

Many questions also were raised regarding possible health hazards with nuclear devices. A. Schwebel, of the National Bureau of Standards, outlined the basis for the recognized international limit of absorption of 100 milliroentgens per week. It was made clear that if all necessary safeguard are taken with nuclear soil gages now available, no ill effects should be suffered by personnel. But use of nuclear devices always involves some risk; so precautions can never be relaxed, only trained operators should be entrusted with these instruments.

The society elected as president A. Allan Bates (see p. 57), vice president of research and development, Portland Cement Association, Chicago. Russell Wade Seniff, manager of research, Baltimore and Ohio Railroad, Baltimore, Md., was made a vice president.

At a luncheon session, the society heard outgoing president F. L. LaQue, a vice president of the International Nickel Co., New York City, urge that ASTM specifications be translated into foreign languages to promote wider use of these standards. They would provide a wealth of information on materials not available in any other form, he said, and would be of great help to underdeveloped countries. They would also promote international trade.

"Greater use of ASTM standards in foreign trade," Mr. LaQue contended, "should go a long way toward improving the demand for high-quality materials and in counteracting the dubious economic advantage of lower-grade materials of uncertain and undefined qualities."

For the U. S. manufacturer competing in the world market on the basis of superior qualities that can be described, assured and measured by reliable means, he continued, nothing will be more helpful than the general use of ASTM standards in offer and purchase. Steps have been taken to translate them for use in Latin America. Mr. LaQue urged his successors to follow up on a broad international scale.

Among other highlights of the meeting was the announcement that Committee A-1 on Steel had approved by letter ballot, with no negative votes, the proposed specification A36 for structural steel with 36,000-psi yield point (ENR May 12, p. 24). This steel is expected to be a replacement for commonly used A7 steel and to be allowed 10% higher basic working stresses. Only the formality of approval by the ASTM Administrative Committee on Standards is now needed to make adoption of the new specification official.

Committee A-1 also approved a tentative specification for high-strength, low-alloy structural manganese-vanadium steel. This metal is required to have a minimum yield point of 42,000 to 50,000 psi, depending on thickness. It is intended to be weldable and to have an atmospheric corrosion resistance twice that of structural carbon steel.

Among committee actions of importance to the construction industry were these:

- Revision by Committee C-1 on Cement of the Standard Specifications for Portland Cement (C150-59), to promote uniformity between the various specifications for this material. The principal changes were deletion of limitations on tricalcium silicate for Type II and Type V cements and addition of limitations on heat of hydration for Type II cement, to be applied when specifically requested by the consumer. Similar changes were voted for the Standard Specifications for Air-Entraining Portland Cement (C175-59).
- Revision by Committee C-9 on

(*Continued on p. 28*)

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(Story starts on p. 26)

Concrete and Concrete Aggregates of Tentative Specifications for Fly Ash for Use as an Admixture in Portland Cement Concrete (C350-57T). A subcommittee is working on refinements in a proposed method of test for cement content of fresh concrete.

• Vote by A-1 Subcommittee V on Steel Reinforcement Bars that distinct, typical, permanent markings should be rolled on the surfaces of high-strength bars to identify them. The subcommittee also initiated a study of the possibility of simplifying existing specifications for high-strength bars by establishing three grades—probably based on minimum yield points of 40,000, 60,000 and 75,000 psi.

• Recommendation by Committee D-4 on Road and Paving Materials that the following tentative specifications be adopted: Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Nonbituminous Types); and Hot-Mixed, Hot-Laid Tar Paving Mixtures. Subcommittee C-10 on Plant-Mix Bituminous Surfaces and Bases also set up a new Tentative Specification for Hot-Mixed, Hot-Laid Asphalt Paving Mixtures (D1663-59T) to replace two existing specifications (D947-55 and D978-54).

• Approval by Committee A-5 on Corrosion of Iron and Steel of Tentative Specification for Zinc-coated (Galvanized Iron or Steel) Sheets for Culverts and Underdrains.

• Broadening of the scope of the Cement Reference Laboratory to include concrete as well as cement testing. Its name will be changed to Cement and Concrete Reference Laboratory, and it will be sponsored by both Committees C-1 and C-9. The laboratory, headquartered at the National Bureau of Standards, evaluates testing equipment of laboratories throughout the U. S.

LA Withdraws From Code Group

The City of Los Angeles has withdrawn from the International Conference of Building Officials and there are indications that other cities might follow suit.

The ICBO (formerly the Pacific Coast Building Officials Conference) sponsors the Uniform Building Code, a national model code since 1926.

Gilbert E. Morris, on the eve of his retirement as Los Angeles Superintendent of Building, charged ICBO management with extravagance and doing too little to further the interest of the cities, the building officials and the construction industry.

Specific objections:

• A salary increase voted for Hal Colling, managing director of the conference, disproportionate to what Mr. Morris believes the job is worth.

• A pension voted for Mrs. Hal Colling, who has had only a few years tenure with the organization, acting as director of publications.

• A $100-a-month pension voted for a field worker who had been with the conference for approximately two years.

• Mr. Morris' belief Mr. Colling was attempting to control the executive board.

Mr. Morris said the only circumstance that would cause Los Angeles to consider a return to the fold would be "a complete change of management," specifically the replacement of both Mr. and Mrs. Colling.

Since his action in pulling out of the conference Mr. Morris reports that he has received more than 20 letters from officials of other cities supporting his move and indicating that they, too, are considering withdrawal.

Mr. Colling refused to comment on the issue other than to say that the situation would "straighten itself out."

Cassatt D. Griffin, assistant chief deputy of the Los Angeles County Engineering Department and president of ICBO, lays the cause of the charges primarily to a personality clash. Although Mr. Griffin hopes that the conflict is a tempest in a teapot, he admits the possibility that ICBO will lose a few members, "but very few." He is convenced that ICBO is still sound both operationally and financially.

Mr. Griffin is in accord with Mr. Morris on the issues of pensions and salary increase. "But since the executive board voted for them," he says, "and this is a democracy, then I have to accept the vote of the board."

Mr. Griffin points out that while it is technically true that Mrs. Colling has been with the organization full time for only the past few years, she has served for many years on a part-time basis as a stenographer.

M. S. Carlson, building official of Alameda County, Calif., and a junior past president of ICBO, says, "Increases in salaries to personnel of the headquarters staff were given by the executive board only after a careful review of a report by a special committee." He denies that the board is a rubber stamp for Mr. Colling.

Several local chapters of ICBO have passed resolutions in support of Mr. Colling since Mr. Morris' charges were circulated.

Army Up in Arms

Pentagon orders probe of missile base controversy

Secretary of the Army Wilber M. Brucker last week ordered a full-scale military investigation of an uproar over a Corps of Engineer project that so far includes a claim of attempted bribery during a dessert course, an FBI investigation and a delay in construction of a missile base.

The scene is Offutt Air Force Base, outside of Omaha, Neb., where Malan Construction Corp., New York City, has a $12.8-million contract to build launchers for a squadron of Atlas intercontinental ballistic missiles.

Malan put out most of the work to subcontractors, 46 of them. At one phase 30 subcontractors were working in an area two blocks square. The result was a tangle in scheduling and control.

The Corps of Engineers, contracting agents for this Air Force base, called in George A. Fuller Co., of Los Angeles as consultants to help untangle the job. Fuller was chosen because of its good performance on the first Atlas squadron job at Warren AFB, Wyo.

A few weeks after Fuller's arrival a man who worked with them on the job (Fuller says he was fired; he claims he quit.) appeared on a local television news program. He claimed that a man wanted to bribe him to remain silent about faulty materials and construction not in accordance with specifications at Offutt.

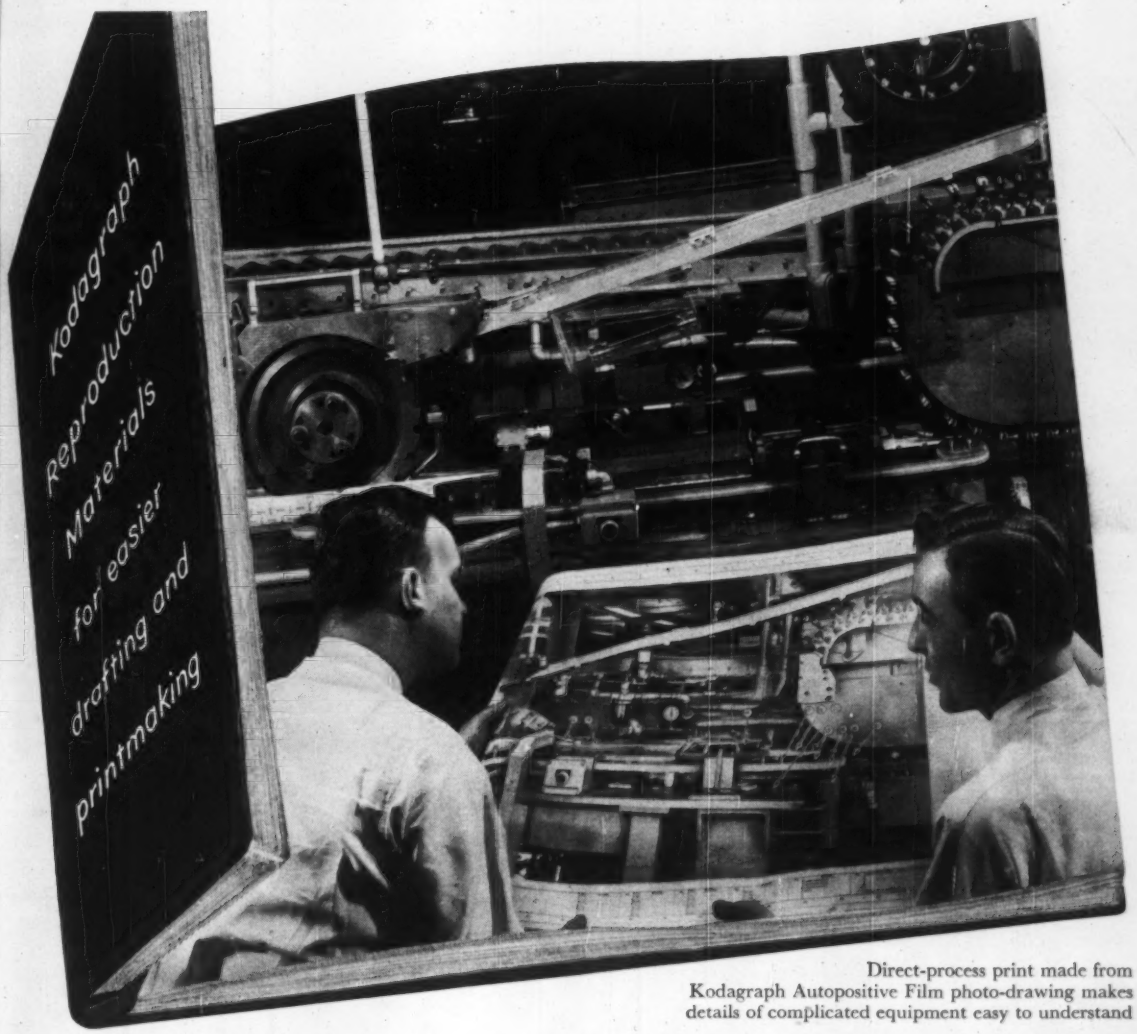
The former Fuller employee, Rex N. Breese, said that he doesn't know the name of the man, who, he said, telephoned him and asked him to dinner. Mr. Breese said that he accepted and, during the dessert course, the stranger offered him $50,000 for his silence. At this point, said Mr. Breese, he left.

Although Mr. Breese demanded a congressional investigation when he was on television, he hasn't filed any formal accusations in any court or agency of record.

The FBI and the U. S. attorney, however, investigated Mr. Breese's charges. The U. S. attorney says: "No charges have been filed or are contemplated at the present time." The FBI is still investigating.

Corps of Engineers spokesmen in Washington say that Offutt has been a problem project. There have been cases where the contractor has been required to replace work already in place, but always at his own expense.

Malan's portion of the job was scheduled for completion April 11, but excusable delays brought an extension to July 31. Completion is expected to be on time.



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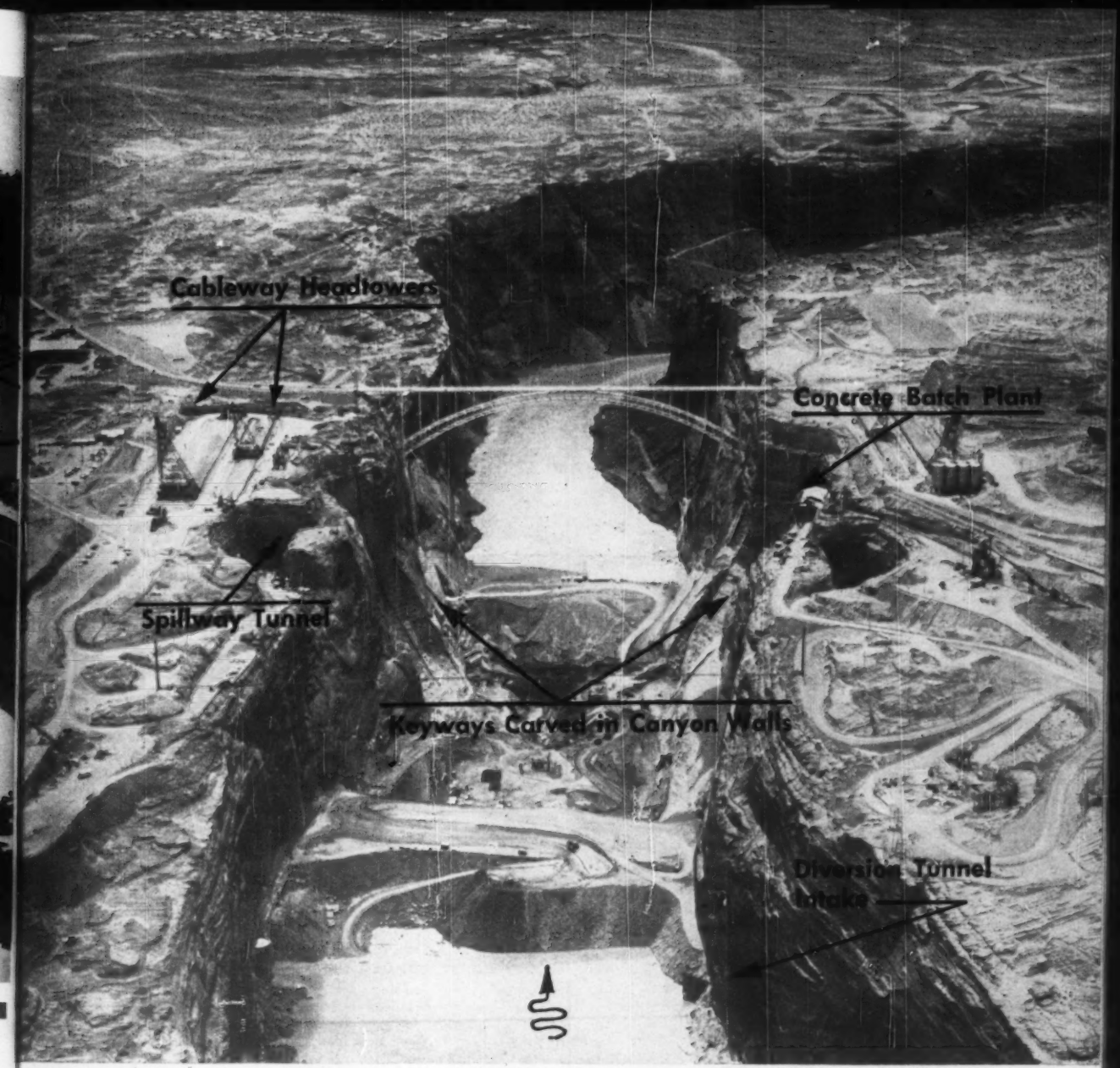


Glen Canyon site from the air is beehive of activity in the rugged Colorado River gorge.

Glen Canyon's Big Pour Starts

A very large bucket of concrete—12 cu yd—made a very small dent in the yardage requirements—4,770,000 cu yd—at Glen Canyon Dam during mid-June. This initial bucket signaled the start of what may be the greatest concreting effort under way anywhere in the world.

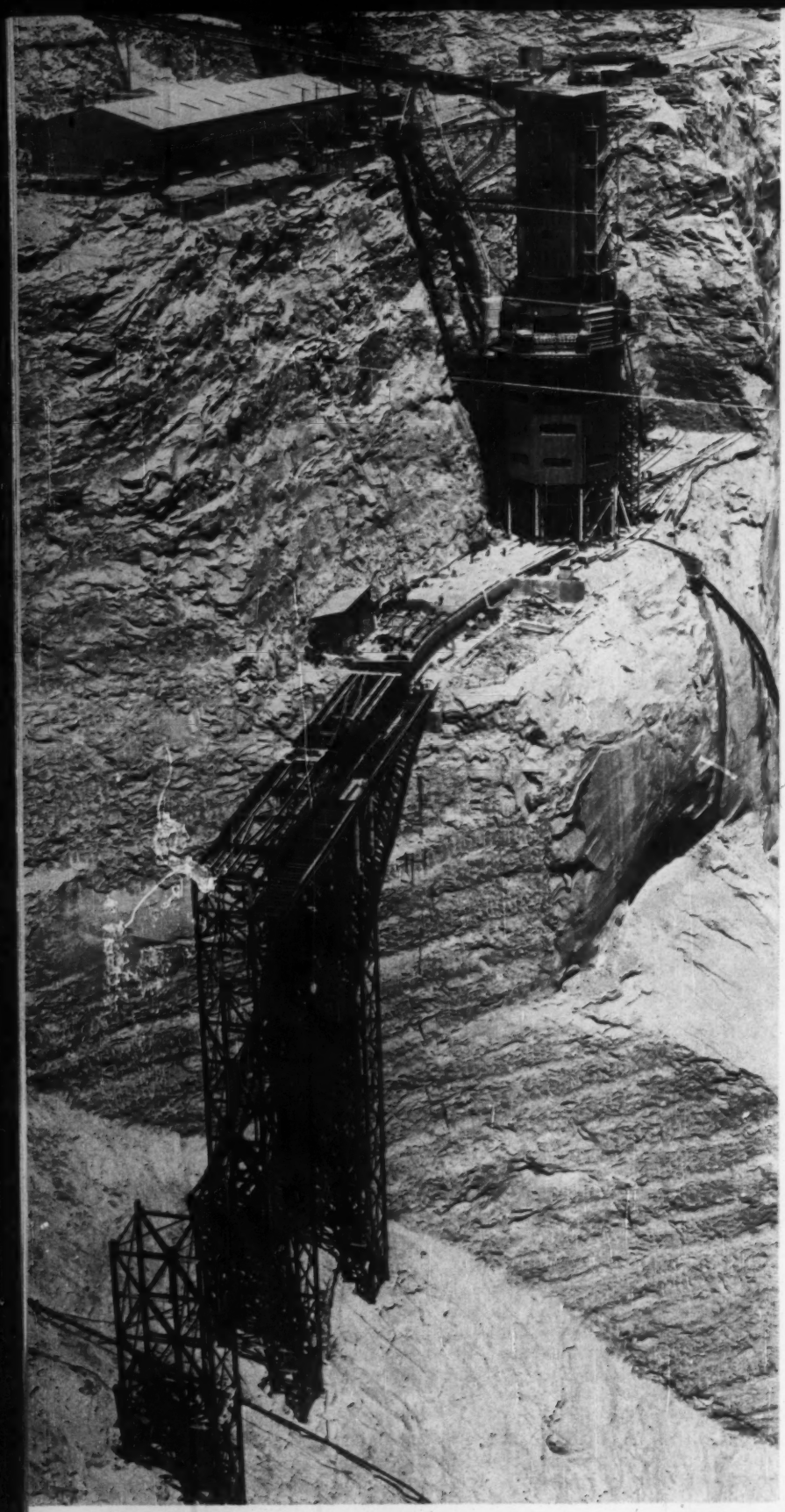
Merritt-Chapman & Scott Corp., holder of the $108-million contract, expects to place 5,100,000 cu yd of concrete in the next 38 months. This total includes concrete in the powerhouse, tunnels and elsewhere on the project.

M-C&S has set up a concreting complex that will deliver an average 9,600 cu yd per day at the peak of construction. Prime features of this concreting extravaganza include two high-speed, 50-ton-capacity cableways that will handle 12-cu-yd buckets; an 800-ton-per-hour aggregate plant; a 4,000-ton refrigeration plant to cool aggregate and provide ice water for the concrete; a cliff clinging batch plant capable of putting out 480 cu yd an hour; and self-powered ladle cars to transfer concrete from batch plant to cableway buckets.

Although first concrete placement was delayed by a construction workers' strike that lasted for nearly six months, M-C&S is doing everything possible to make up for lost time. There is still hope that the accelerated schedule will spur the over-all project to completion by the target date of March 6, 1964.

Concreting on other phases of the project has been going on for some time. First concrete went into tunnel linings two years ago with the concrete being produced by temporary aggregate, batching and mixing facilities. Powerhouse concreting started earlier this spring.

Apparently the May 26, 1962, completion date for the powerhouse is the tightest schedule that M-C&S has to



BATCH PLANT, 200 ft high, perches on canyon wall near keyway. Trestle carries rail-mounted transfer cars that feed cableway buckets.

TRANSFER CAR ladles hold 12 cu yd. Self-sized cableway buckets that are spotted

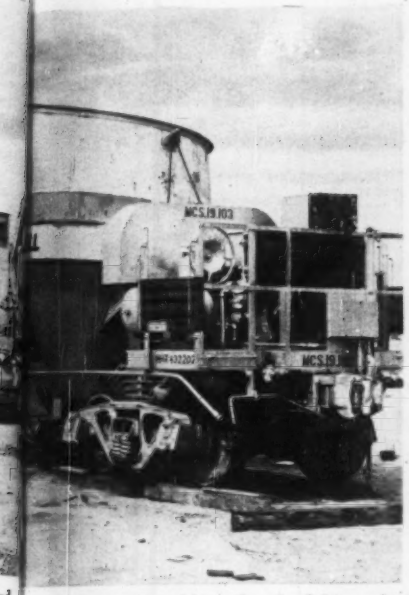
meet. The powerhouse calls for $1,000-a-day penalty for every day the job runs beyond the completion date. Even before the strike shut down the job last summer, M-C&S modified its original construction plan by calling for a third cableway—a 25-ton unit to be used exclusively for powerhouse construction. This cableway is not yet in operation.

• **Cableways are fast**—The greatest innovation in the Glen Canyon construction plant is a pair of 50-ton-capacity, high-speed cableways that haul concrete in 12-cu-yd buckets. Both cableway and buckets rank as "biggest ever" in dam construction. With a hoist speed of 600 to 700 fpm—the fastest ever—and a hauling speed range from 1,200 to 1,400 fpm, M-C&S can place an average 24 cu yd of concrete every 5½ minutes.

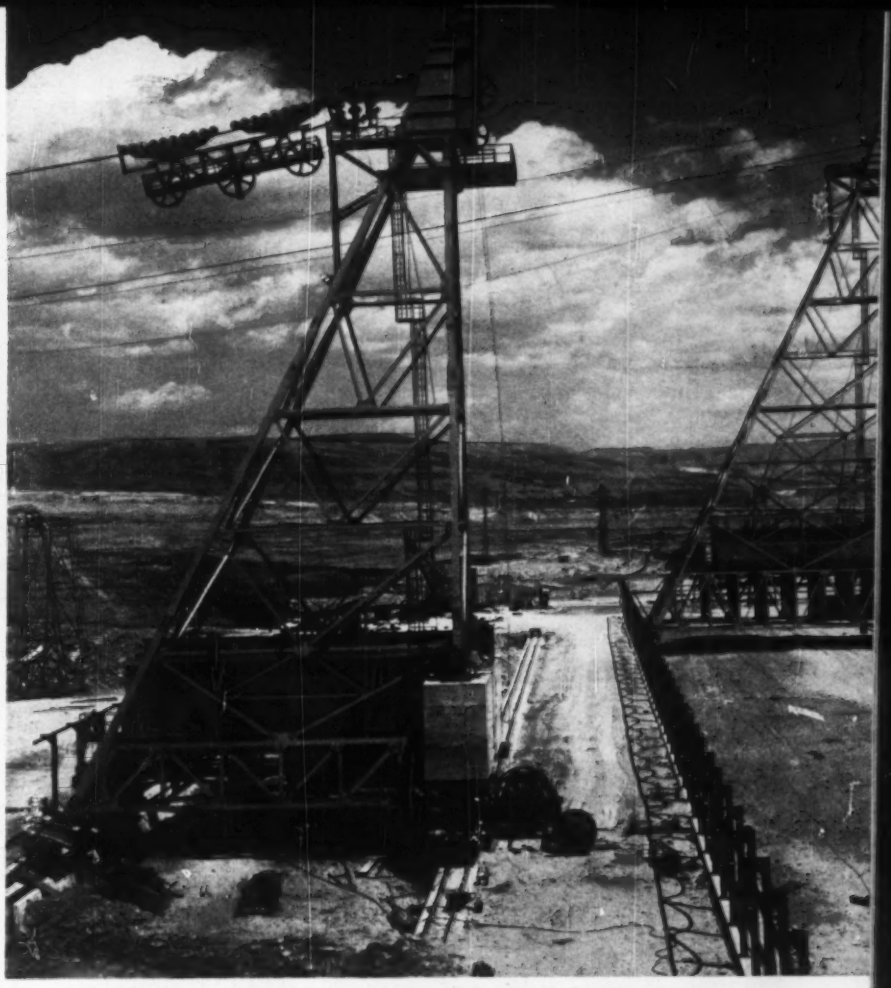
The heavier cableways became necessary when it was found that 12 cu yd buckets were feasible. The greater weight required a bigger main gut (track cable) than had ever been used before. The 4-in.-dia steel cable spans 1,800 ft for the lower of the two main cableways and 2,050 ft for the upper one.

The 50-ton cableways are constructed at different elevations so that one can pass directly over the other. The headtower for each unit is located on the east side of the canyon. They house mechanical and electrical equipment. Each tailtower on the opposite bank carries a takeup hoist for the main gut.

Towers of the higher cableway rise to about 1,000 ft above the dam foundations and travel on a 910-ft track of 175-lb rail. The lower unit has 810 ft of lateral travel.



on power units with trailers load king-split-level trestle (left).



HEADTOWERS for 50-ton cableway can pass one another since inboard tower is lower than 190-ft-high unit (right). Track cable is 4-in. dia wire rope.

The cableway's high speed is made possible by the rigging method and the drive mechanism (patterned after a cableway developed by Guy F. Atkinson Co. for use at Pine Flat Dam in California, ENR Oct. 4, 1951, p. 38). In brief, the hoist line is dead ended at the tailtower (English reeving). Separate motor drives are used for hoist and haul drums. Thus, vertical position of the bucket has no relation to position of the carriage except as effected by track cable sag. Use of separate motor drives permits overlap of hoist and haul motions.

Actually, there are two motors, each with its own generator, powering the hoist drum. The haul drum is powered by a single motor and generator. Standardization of spare parts is possible because all three motors and generators are of identical rating. Motors are 500 hp, 900 rpm, 480 v units.

The hoist drum is 106 in. in diameter and 96 in. long. It can wind 2,180 ft of 1¼-in. wire rope on the first layer.

The haul hoist, on the other hand, has two drums in tandem, one of which is an idler drum. These drums handle the 1¼-in. wire rope that serves as an endless conveyor line.

Towers are fabricated steel with high tensile bolts used for field assembly. Concrete counterweights prevent overturning. Each tower is mounted on four, eight-wheeled trucks. An electric motor powers each truck. The towers have limit switches for longitudinal travel and skew correction controls.

Cableway operators, perched in a two-story control house cantilevered from the right rim of the canyon, get an unlimited view of the entire work area.

A second set of operator's controls in the headtowers across the canyon permit routine maintenance operation.

• **Transfer cars for loading**—The 12-cu-yd buckets are loaded by tilt-type transfer cars operating on a structural steel trestle. The trestle clings to the cliff-side 175 ft below the dam crest and passes through what will eventually be the right side of the dam.

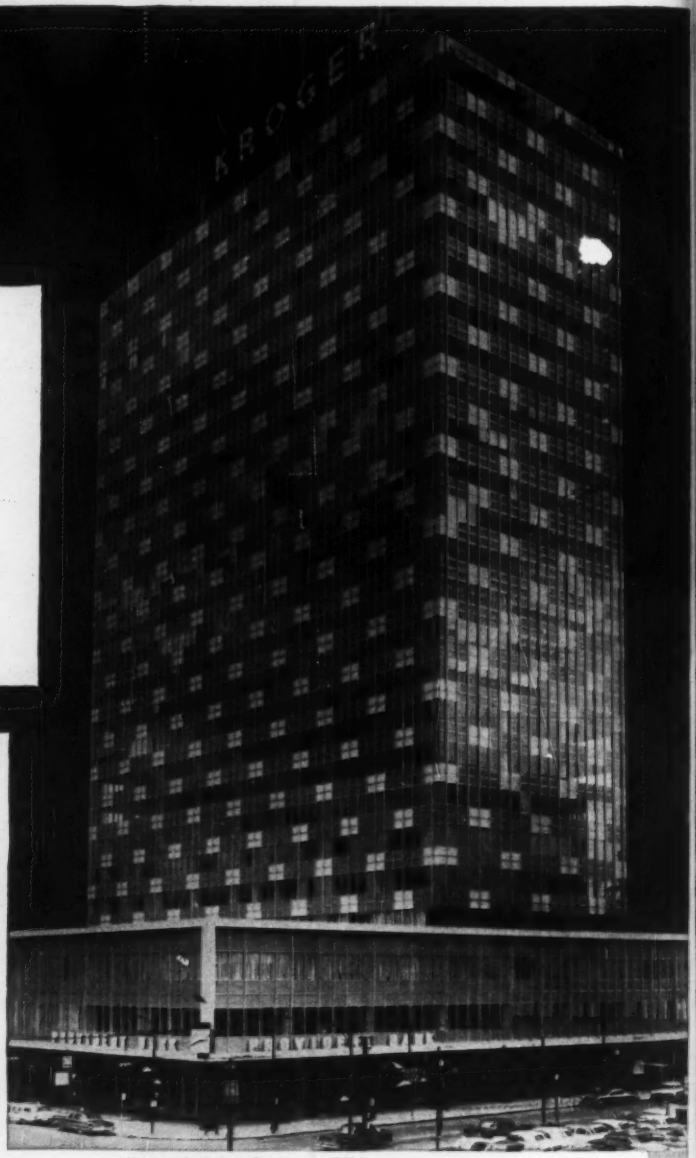
There will be three transfer car assemblies in operation. Two will have a pair of 12-cu-yd ladles—one a self-powered unit, the other a trailer. The third transfer car has a single ladle and, in general, will be used for concrete near the face of the dam that uses upgraded aggregate.

Ladles on the double units will be loaded simultaneously from a pair of 26 cu yd hoppers at the base of the batch plant. A smaller 13-cu-yd hopper is available for special purpose concrete.

The transfer car installation eliminates the time consuming hooking and unhooking of concrete buckets. It will permit the cableway operator to spot a bucket on a platform just below trestle

FIRST BUCKET of concrete placed in the dam proper hits the canyon floor.

constructed of REINFORCED CONCRETE at less cost



Kroger Building, Cincinnati, Ohio
Owner: Milner Enterprises, Inc., Jackson, Mississippi
Architects and Engineers: Hedrick & Stanley, Ft. Worth, Texas
Contractor: George A. Fuller Company, New York and Dallas

Another outstanding example of reinforced concrete construction is the new $8,000,000, 27-story Kroger building in Cincinnati. Here, architects changed the design to reinforced concrete framing and concrete joist floor construction to reduce over-all construction costs and construction time.

For every type of building, reinforced concrete offers many costsaving and timesaving advantages. To reduce costs, it utilizes most efficiently both reinforcing steel and concrete to provide the most rugged structural frame possible. Construction time is reduced through the availability of all materials from local sources—construction can begin tomorrow and structural changes made without costly delays.

Before you build any type of building investigate the more economical, timesaving, and design advantages of reinforced concrete construction.

9-6

Concrete Reinforcing Steel Institute
38 South Dearborn Street, Chicago 3, Ill.

DAREDEVILS install rock anchors in spray of raging discharge from diversion tunnel.

track level. Fine adjustment in alignment is made by the transfer car operator just before tilting a ladle into the bucket. This means that for normal concreting operations lateral movement of the cableway is necessary only during concrete placement, not for transfer.

M-C&S purchased three of the huge 12-cu-yd buckets from Blaw-Knox Co. (ENR Apr. 21, 1960, p. 23). The buckets have hydraulically operated roller gates, 4 ft. square. They stand 11 ft 7 in. high and have a single compartment 8 ft in diameter. A pressure building mechanism develops sufficient hydraulic pressure from the weight of the concrete load for three complete opening and closing cycles.

• **Why the big buckets?**—The big buckets are needed because of the 7½ ft high lifts and the relatively large blocks. There are 26 blocks along the 1,500-ft crest length of the dam. The monoliths are nominally 40, 60 or 70 ft wide. A staggered longitudinal joint separates the dam into two blocks for each monolith at the lower elevations.

For these lower areas, there is a limit of 30 ft in elevation between adjacent blocks and 52½-ft difference in elevation between the highest and lowest blocks. Purpose of the height differential limitation is to see that block cooling is relatively uniform. Even though concrete placed in the dam is limited to maximum of 50F, heat of hydration will raise temperatures substantially.

The concrete must be cooled so that construction joints will open up to permit effective grouting for development of the arch action of the dam. Final temperature required before grouting is 40 F up to El 3450 and varying up to 50 F at crest elevation (EL 3715). M-C&S is using 1-in. aluminum cooling pipes that weigh only 21 lb/100 ft.

Steel cantilever forms are being used for the monoliths. These are fabricated by Blaw-Knox Co. in 10-ft 7½-in. panels. The skin plate is ⅜ in. thick backed up by a series of 6-in. junior I-beam walers. Each panel has a pair of vertical struts made of 8-in. steel beams. Panels are braced by an A-frame pipe and channel assembly that supports a work platform. A pair of 1⅜ in. anchor bolts holds each panel to the previously poured concrete.

• **Biggest batch plant**—Glen Canyon's batch and mix plant is reputedly the biggest ever installed for dam construction. The million dollar plant, furnished by the Noble Co., has eight aggregate bins with a total storage capacity of 3000 tons.

Beneath the storage bins six, 4-cu-yd Smith mixers are arranged in a circle. Capacity is 480 cu yd an hour with each cycle averaging three minutes per mixer. All plant operations—weighing, batching and unloading—are automatic and will be tape recorded. One man operates the batch plant.

One of the biggest industrial refrigeration installations ever built serves the plant. Rated at more than 4,000 tons, the giant "water cooler" is powered by more than 7,000 hp of connected horsepower.

The refrigeration plant will cool water that is circulating through pipes imbedded in the dam concrete. But its primary function is to permit production of concrete at below the maximum placing temperature of 50 F.

First cooling effort involves spraying the coarse aggregate with 1,200 gpm of chilled water as the belt conveyor takes it to the batch plant. Once in the storage bins, the rock is cooled to 35 F by air refrigeration. Finally, ice and chilled water are used as mixing water.

Maximum size of rock for the aggregate is 6 in. Light rock is removed by the heavy media process for use in concrete placed near the faces of the dam (ENR July 31, 1958, p. 28).

Pozzolan is substituted for part of the cement in the mass concrete (about one part pozzolan to every two parts of cement in a cubic yard of concrete). This results in better workability and lower cost. One estimate has placed the savings at Glen Canyon through use of pozzolan at $1.3 million.

Cement and pozzolan are provided under separate contracts. Cement comes from a new plant built by American Cement Corp. at Clarkdale, Ariz., some 188 miles away. Their successful bid was $3.25 a barrel or $9,780,000. The cement is being hauled by a fleet of twenty double hopper trailer-truck units capable of delivering 6,000 bbl of cement a day. The fleet is comprised of 20, single axle, diesel-powered tractors and 40 hopper-type cement trailers. The cement haul is a $4-million subcontract.

The pozzolan contract held by J. G. Shotwell of Mercer Island, Wash., calls for 220,000 tons of the concrete admixture. The material used is from a natural pumice deposit located 25 miles north of Flagstaff, Ariz.

Pozzolan storage silos at the dam have 3,300 ton capacity. To meet pozzolan requirements at peak operation, a truckload will arrive at the dam every hour and forty-three minutes night and day.

L. F. Wylie is project construction engineer for the Bureau of Reclamation. A. R. Bacon is project manager for Merritt-Chapman & Scott Corp.

Glen Canyon Statistics

CONCRETE ARCH DAM	
Height above river bed	573 ft
Structural height	about 700 ft
Crest length	1500 ft
Crest width	35 ft
Base width	300 ft
Concrete in dam proper	4,770,000 cu yd
Spillway capacity	276,000 cfs
RESERVOIR	
Capacity	28,040,000 acre-ft
Area	162,700 acres
Length	186 miles
POWERPLANT	
Capacity	900,000 kw
Number of units	8
Generator capacity	112,500 kw
Turbine capacity	155,500 hp

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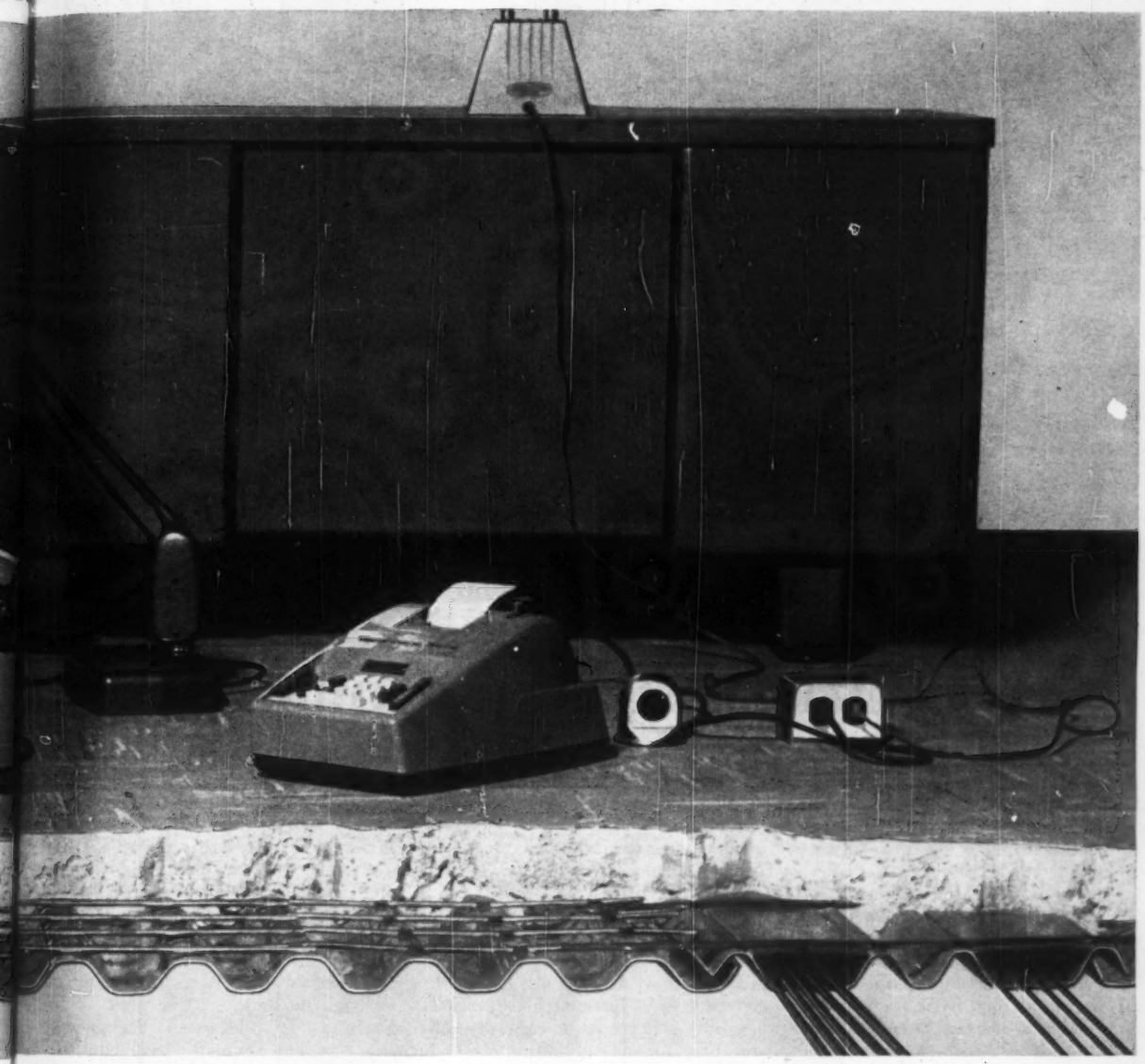

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Manufacturing areas resemble aircraft factories, but missile advances keep them changing.

Missile Plant Construction

Before you can shoot them, you have to design and build them.

Missiles, spawning a rash of base construction projects, have also generated a large and continuing market in development and production plants. Construction dollars by the million have gone into these plants and many millions will follow because of rapid changes in missile technology.

The construction market for these plants is not only big, but it has its own design and construction requirements setting it apart from ordinary manufacturing plant construction.

An example of just one of many of these installations is the Aerojet-General Corp. plant near Sacramento, Calif. In the past nine years, $180 million has been spent there on construction alone. The 1959 program totaled some $30 million. This year the construction rate is somewhat lower, but still involves sizable expenditures.

The Aerojet-General plant includes more than 600 buildings—nearly 3 million sq ft under roof—and outdoor facilities spread over 30 square miles. All facilities were designed by Aetron, Aerojet-General's architect-engineer division. And all construction was done on a lump sum contract basis with nearly all of the contracts awarded after competitive bidding.

The 1959 program involved 600 different contracts. A few were for as little as $5,000; only five or six were in excess of $1 million.

This plant specializes primarily in development and manufacture of rocket motors. The biggest item at Aerojet now is the 1,500-mile-range Polaris missile, designed to be launched from underwater submarines. In addition to missile motors, Aerojet at Sacramento develops and manufactures various items of missile hardware. And development programs are underway on high energy fuels and liquid hydrogen fueled rocket engines.

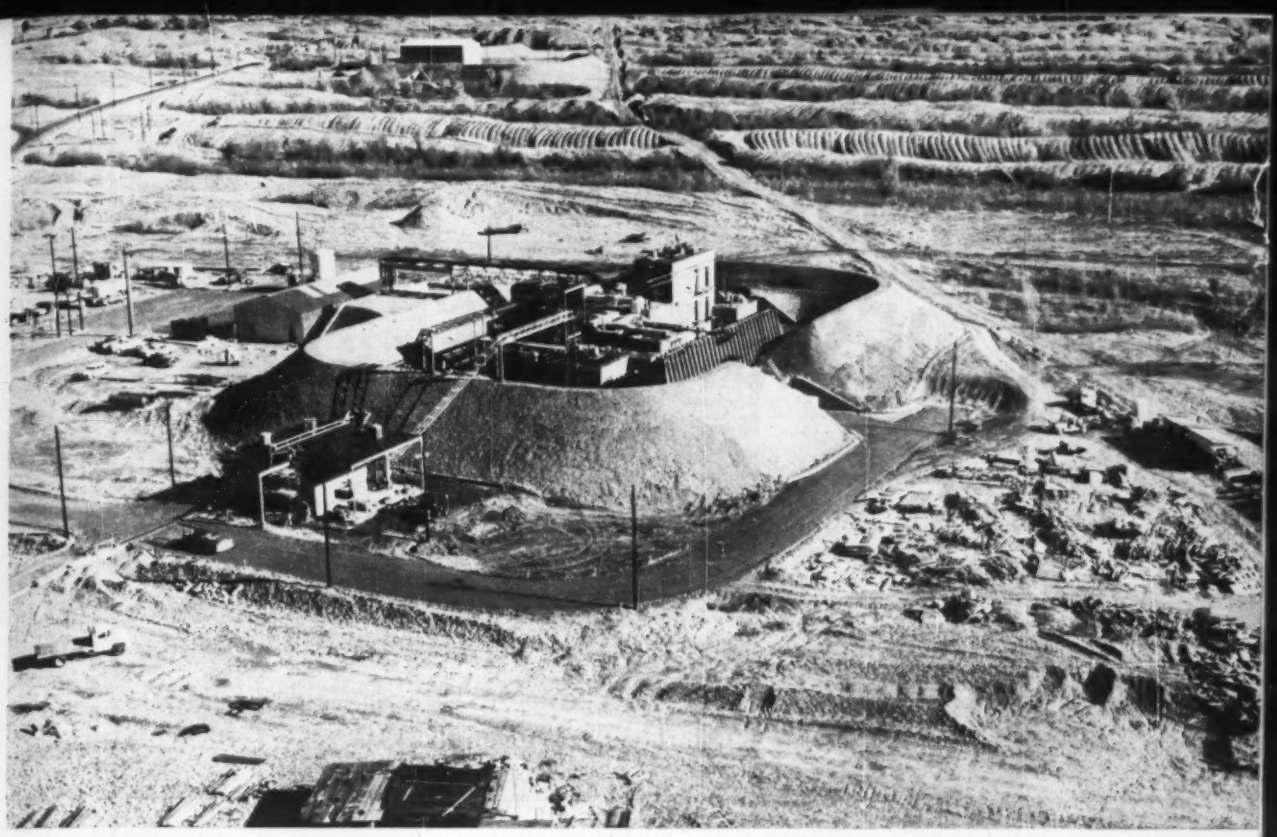
Development of Aerojet's Sacramento plant began in 1951 with the acquisition of 8,000 acres. First facilities were for manufacture of JATO (jet-assisted-take-off) units for the Navy. And the first construction program included $4 million of Navy money and $1½ million of Aerojet money. This general pattern of funding the construction work with both military and Aerojet money has been followed ever since. And because public money is involed in almost every development, competitive lump sum bids are taken for almost every construction job rather than resorting to negotiated contracts as is done on much private work.

With the development of JATO during World War II, the company was one of the first to get into the solid fuel rocket business. And it has made good use of this long experience in the Minuteman and Polaris programs. Result is that the Sacramento plant is one of the largest and most advanced solid fuel manufacturing facilities in the U. S.

Selection of the Sacramento site resulted from a search for new manufacturing areas after Aerojet outgrew its facilities in southern California. Situated some 14 miles east of Sacramento, near Nimbus Dam, the area has been almost completely worked over by gold dredge operations, leaving it nearly useless for farming operations. But it was ideal for rocket engine plant development where isolation of various plant units was necessary.

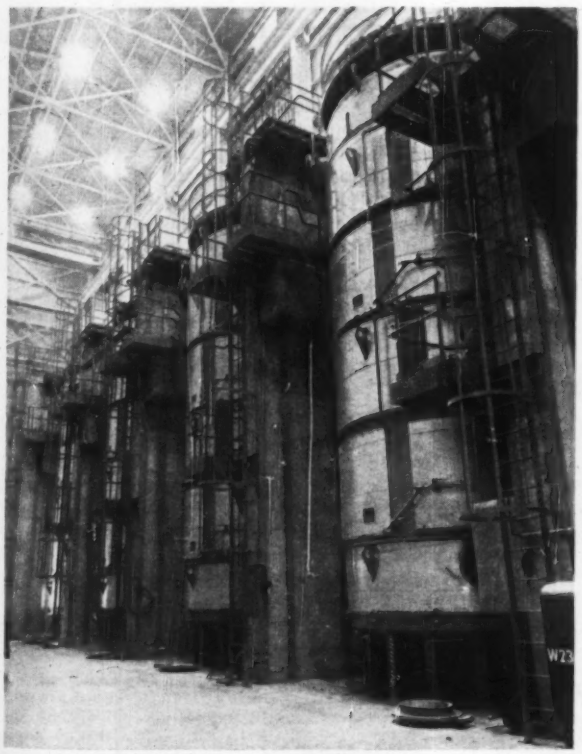
Proximity of Nimbus Dam assured a close source of power—connected load is now 220,000 kva. And the dredging operations had developed a water supply that Aerojet has tapped for its 7.2 mgd needs. As a matter of fact, one gold dredge is still operating at the site taking out some $1,000 a day in gold. It's a somewhat incongrous sight to see the mammonth, 50-year-old dredge literally in the middle of a missile plant.

Aerojet's Sacramento plant—presently employing 15,000 persons—is divided into three main areas: administrative,

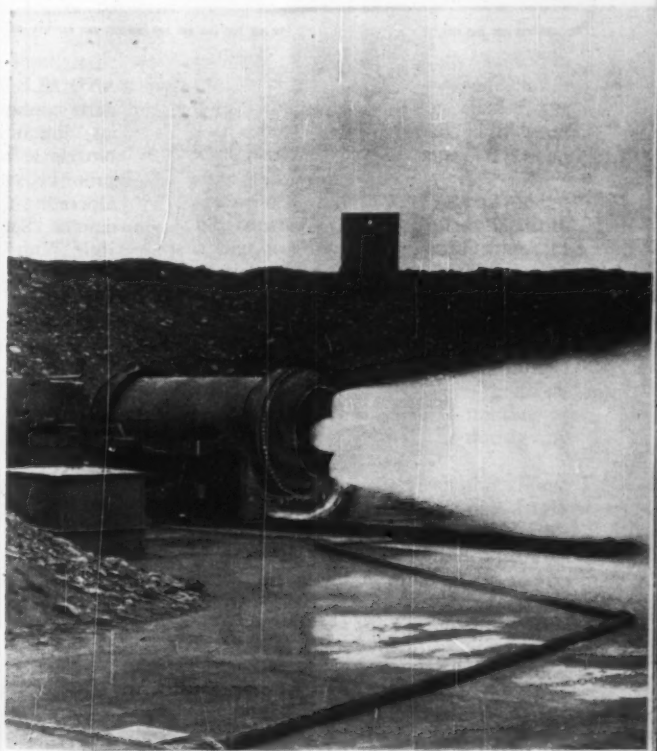


Fuel production areas are scattered, isolated. (Gold dredge tailings furrow the ground.)

Big, Varied and Expensive



Solid fuels demand massive construction but . . .



test stands are simpler than for liquid fuel.

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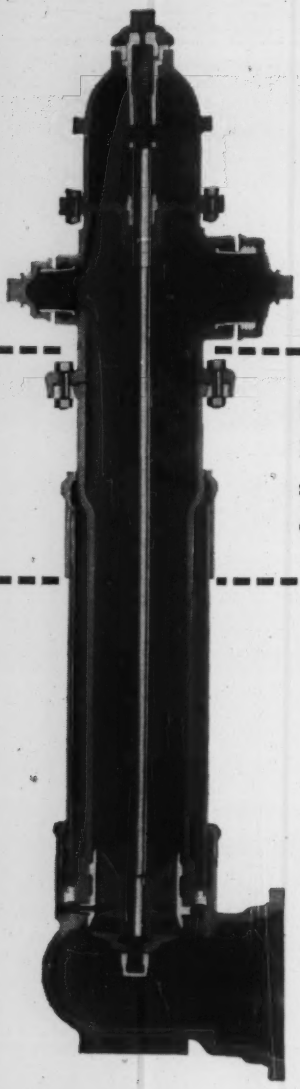

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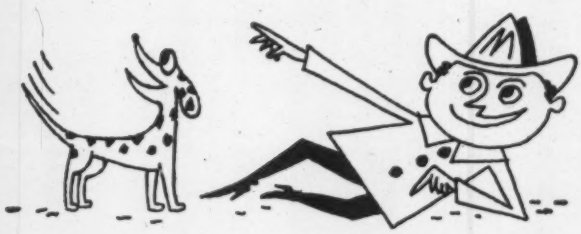

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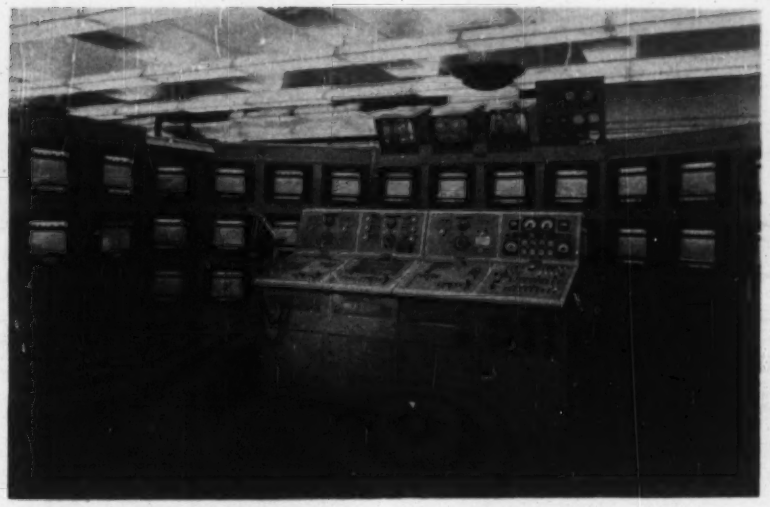


Controls get complex for both production and testing.

liquid fuel and solid fuel production facilities.

The administrative area includes huge design and drafting rooms, administrative offices, a cafeteria, and service buildings plus a seven-acre building used to manufacture missile hardware for the Air Force.

The recently completed engineering services building is an example of the type of construction involved in the administrative area. In spite of low cost—around $10 a square foot—it has a very pleasing appearance. This 229,000-sq-ft building has one and two story areas. It is air conditioned and sprinkler protected. The structure houses 1,000 employees, most of whom work on the Minuteman program, plus the corporate office for the Sacramento plant. Construction features include 16 ft of clear height below tapered steel roof girders, concrete block walls and a plywood sheathed roof.

Structures in the administrative area are clustered fairly close together. In the other two areas, however, they are spread apart.

The liquid fuel plant includes 24 static test stands, some of which are capable of resisting thrusts up to more than a million pounds. This is one of the largest concentrations of such test stands in the U. S.

The solid rocket plant has several "lines" where solid fuel is batched, mixed, cast and cured to form rocket motors. And it includes eight test stands for test firing solid fuel motors. Actually, a solid fuel test stand is much simpler than a liquid stand since it does not require such extensive piping. And, because the solid fuel motor can be tested in the horizontal position, a wet flame deflector is not needed.

Design of the buildings in the solid fuel plant area is similar to other plants for manufacture of explosives. Exterior is usually asbestos-cement construction, although some concrete has been used. Designs include blast panels, air locks for humidity control, conductive floors to minimize sparks, and coving at walls and floors to reduce the dangers of dust accumulation.

Separation of the buildings is governed by tables developed by the armed services. And most of the facilities are surrounded by revetments to force an explosion upward.

Revetments are generally made of the natural gravels on a 1½ to 1 slope —the angle of repose. Timbered revetments are used where the area is cramped. And some precast concrete revetments have been tried.

Revetment height is pegged at 2 ft higher than any part in the building where explosive material is stored or handled. Revetments are omitted only when there are no other buildings close enough to be subject to blast damage.

Proper location and design of revetments has contributed to a somewhat remarkable safety record at the Aerojet plant. A few explosions have occurred, but both damage and casualties have been limited by the revetments to the immediate vicinity of the blast.

An example of the many contracts handled by general contractors is a new continuous process plant for solid fuel mixing—the first full scale plant of its type in the U.S. The multimillion-dollar contract was held by Baldwin Contracting Co., Inc., of Marysville, Calif.

Because of the process equipment and instrumentation involved, Baldwin had to coordinate the efforts of specialty subcontractors. For example, in the control room for this plant there are 1,700 separate instruments to make the process completely remote controlled. The instrumentation includes several television monitors as well as remote recording weighing devices and the like.

The maze of instrumentation and piping involved in the work has had a tremendous effect on the construction industry around Sacramento. The area is now swarming with highly trained technicians in both the electrical and pipefitting fields.

The continuous process plant for solid fuel preparation is a drastic change from the batch method previously used. Heretofore each of the various constituents was prepared in a separate building, each of which was isolated from the others. For example, many of the buildings require nine acres with the building occupying only a small fraction of that area. The materials are brought together in a mixing building where 2,200-lb batches are blended with equipment modified from dough mixers used in bakeries.

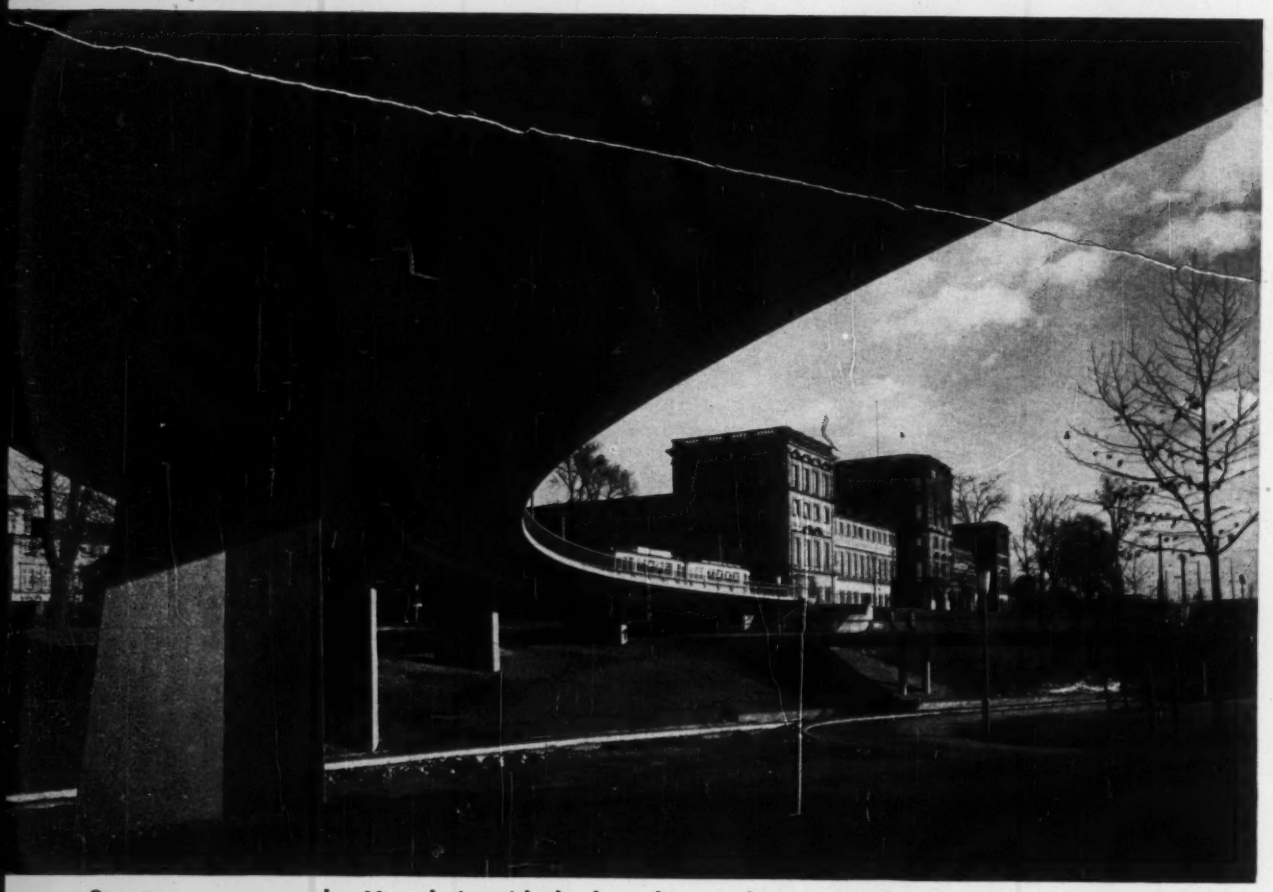
Although each step is dangerous, the final step of blending the materials is the most critical. Advantage of the continuous process plant is that a very small quantity of material is passing through the mixing area at any one time. Thus the hazard is greatly reduced.

Another important facility in the solid fuel manufacturing process is embodied in a relative large "cast and cure" building where solid fuel—a viscous, dough-like mixture—is cast in rocket motors. The motor then is cured in what amounts to huge ovens. The building is equipped with a 50-ton bridge crane 70 ft above the lower floor. Superstructure is a steel frame with asbestos-cement siding. The lower level, sunk into the ground, has concrete walls.

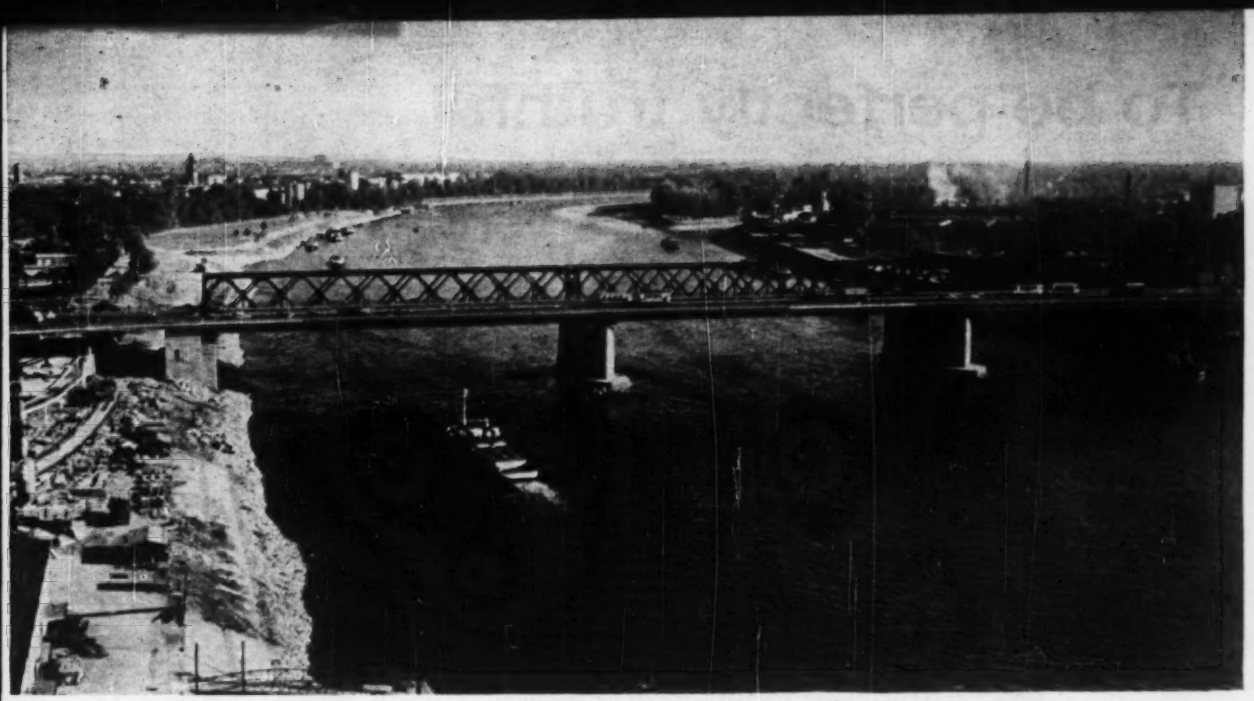
One of Aetron's problems in design and construction of the plant facilities is that many jobs are modifications of existing buildings—modifications that must be carried on without interfering with production commitments. Reason for the changes are, of course, the rapidly changing technology in missile motor manufacture. These modifications account for the large number of contracts that they handled during any one year.

Except for minor field modifications, design of the Sacramento plant facilities is accomplished by Aetron's 500-man staff at Covina in southern California. This group is directed by manager B. F. Rose, Jr. (ENR Dec. 24, 1959, p. 64). At the Sacramento plant, Aetron has a construction management staff of 47, including field engineers, inspectors, accountants and the like. This group is, in effect, the plant facilities staff for the Sacramento installation. It is headed by E. S. Hutchinson, Jr.

Yankee-Style Approaches Lead to



Streetcar ramp on the Mannheim side had to skirt an historic castle.



New Box Girder Across the Rhine

A 900-ft continuous steel box girder bridge now spans the Rhine River between Mannheim and Ludwigshafen, in western Germany. The bridge carries highway, streetcar, bicycle and pedestrian traffic.

The structure replaces a temporary two-lane bridge erected in 1945 after the original crossing was destroyed by German sappers near the end of World War II. The new span—and a parallel railroad bridge—rests on the original piers and abutments.

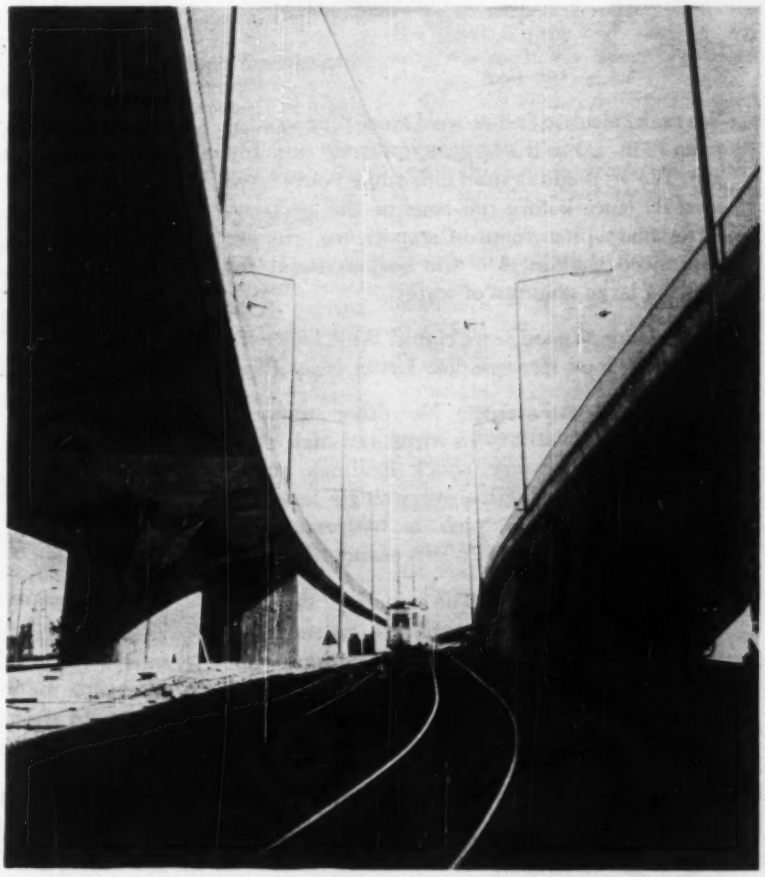
Still under construction are elaborate bridge approach systems on both sides of the river.

On the Mannheim side, four main highways, a streetcar line and pedestrian and cycle paths are compressed into a very limited area as they approach the bridge. A major structure is the streetcar ramp—its concrete deck is prestressed in both directions by an unusual system.

In Ludwigshafen, major feature is an elevated highway nearly ¾ of a mile long. "Mushroom" piers of unusual design support its prestressed concrete deck.

Although divers found the timber pile foundations of the two river piers in satisfactory condition, engineers directed grouting of the gravel bed surrounding the tops of the piles as a precautionary measure. Workmen removed the damaged facings from the piers, and replaced them with Black Forest granite.

The bridge comprises three equal spans, each of which is about 300 ft long. To save weight, the design in-



Conrete "mushrooms" support road on Ludwigshafen side.

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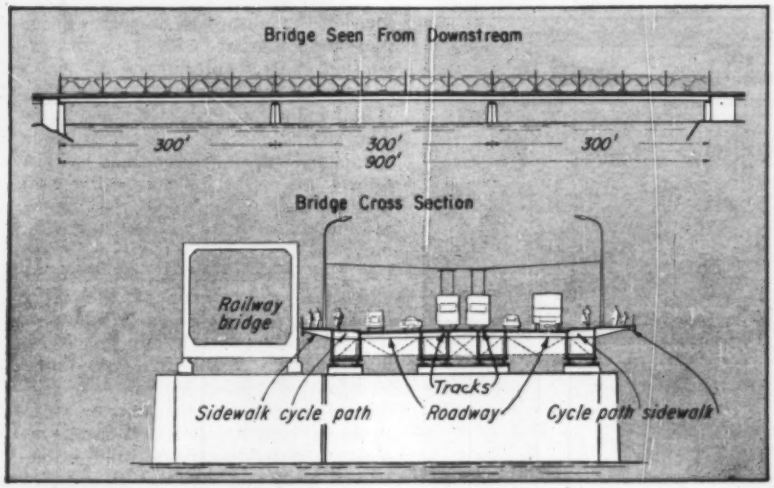


BRIDGE has four box girders and orthotropic plate deck.

corporates four continuous steel box girders. The steel bridge deck is a stiffened orthotropic plate that serves as the top flange of the girders and also supports the roadway.

Maximum depth of the box girders is 8 ft 6 in.; transverse spacing is 26 ft 9 in.; 17 ft; and 26 ft 9 in. c-c. Web thickness is from 0.35 to 0.43 in. Where necessary, designers stipulated internal bracing for the girders. At the Ludwigshafen end of the bridge, engineers provided fixed anchorages for the four girders. Movable bearings were installed at the piers and the abutment on the Mannheim side.

Deck plates over most of the bridge are about ½ in. thick; at the Ludwigshafen end this increases to ⅝ in. Deck-plates are stiffened by longitudinal box beams from 10 to 12 in. deep and about 2 ft apart.

Transverse floor beams are spaced at intervals of about 6½ ft. Every third beam carries a cantilever at each end to support the sidewalks.

Designed by Heinrich Tiedje, Professor of Architecture at Stuttgart Institute of Technology, the structure is almost entirely welded. Only riveted joints are those for cross-girder connections and the field connections for the main box girders. Steel weight per sq ft of bridge surface is 74 lb.

It was necessary to maintain cross-river traffic at all times during construction. For this reason, the contractor (Demag, Duisburg) first built about half the new structure between the railroad bridge and the temporary highway bridge, which was kept in service. When that half was finished, roadway and streetcar traffic was diverted to it, and the old bridge was demolished. The contractor then completed the new crossing.

Total cost of the bridge was about $2½ million.

On the Mannheim side, designers had to squeeze four main roads, the streetcar tracks, cycle and pedestrian paths into an area no more than 800 by 1,100 ft. The problem was complicated by an extensive network of railway sidings and two sets of tracks that carry rail traffic over the Rhine bridge. Further restricting development was the Mannheim Schloss (castle), a war-damaged historical site scheduled for reconstruction.

Consulting engineers Dorsch-Gehrmann of Weisbaden decided on a plan which channels each stream of traffic from or to the main highways as it leaves or enters the bridge. They provided a separate elevated ramp for streetcar traffic. All in all, 16 structures are incorporated in the Mannheim approaches.

Principal structure is the 470-ft-long ramp that carries the streetcar tracks onto the bridge. The sharply curving ramp is supported by seven slender reinforced concrete piers spaced about 60 ft apart. Overall width of the structure is 40 ft. The portion of the deck that carries streetcar traffic is only 20 ft wide; the remaining width is taken up by a 6½-ft-wide sidewalk on the outside of the curve and 13½-ft walk on the inside.

The concrete piers are about 9½ ft wide at the top; height above ground varies from 11½ to 28 ft. One of the abutments and the adjacent pier are founded on reinforced concrete piles driven to a depth of about 46 ft. Remaining piers and the other abutment rest on spread footings on a deposit of gravel.

The deck of the ramp is prestressed in both directions by an unusual application of the Bauer-Leonhardt system, which uses parallel wire cables and cone-type anchorages. Seven ⅛-in.-dia wires compose each strand of cable.

The longitudinal prestressing system is made up of two continuous cable loops; the outer loop has 156 cable strands and the inner loop, 108 strands. In the usual application the loops are passed through the abutments at each end of the structure and the prestress applied.

Sharp curvature (195-ft radius) of the Mannheim ramp forced a change in the system. To prevent excessive cable friction and reduce their length, the cables are looped some distance in front of the abutments. The contractors (Gruen and Bilfinger, Mannheim; Dykerhoff and Widmann, Munich; and Zeublin A. G. of Stuttgart) cast the end sections of the ramp separate from the center section. A gap of about 16 in. was left between the center section and each of the end sections. The end sections were cast in forms mounted on a series of slides.

Workmen placed eleven 290-ton hydraulic jacks in each gap. The jacks were operated simultaneously to push each end section about 14 in. toward the abutment, to place the prestressing cables under tension. With the end sections forced outward, precast concrete blocks were inserted in the gaps, the jacks released, and the gaps filled with concrete.

Sliding hardwood joists resting on a series of hardwood runners supported the forms for the end sections. Soft soap was used as a lubricant between the hardwood surfaces.

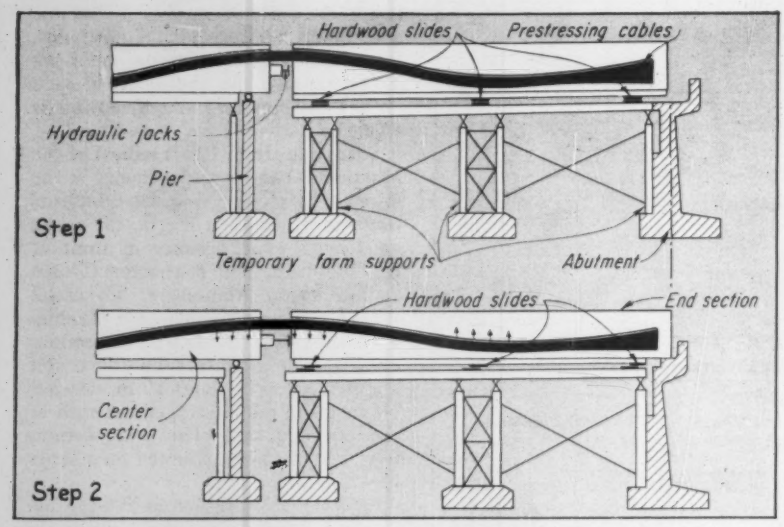
Along the sides of the loop, prestressing strands were enclosed in a rectangular sheet-steel box. At the circular loop ends, engineers located the individual strands one above another to form a flat section.

Another notable structure in the Mannheim approach system is a 1,735-ft elevated highway. On tangent, the roadway is 35 ft wide; it widens to 37 ft around the curve. Piers, similar to those used on the streetcar ramp, are spaced about 100 ft c-c.

On the Ludwigshafen side of the river, highway planners faced an entirely different situation. Existing and planned major highways bypassing the town and heavy traffic from the industrial suburbs had to be quickly merged with local traffic across the river. Designers chose an elevated highway as the most feasible answer.

The first ¾-mile section of the planned 3½-mile elevated highway is finished. Planned for the immediate future is an extension of the elevated highway to a connection with a major north-south route through the center of Western Germany.

Leaving the bridge, the elevated highway is nearly 100 ft wide and carries six lanes of traffic plus the two sets of streetcar tracks. The roadway then divides, and the streetcar tracks go down a center ramp to street level. About 1,000 ft farther along, the high-



TO DEVELOP PRESTRESS, contractor jacked end sections of ramp toward abutments.

way again divides, with temporary ramps to existing streets.

Original plan was to support the elevated highway on 54 trapezoidal columns. Because of the large number of major and minor streets that pass beneath the structure and the need for parking space, the town council decided to adopt a new "mushroom" system of support developed by Dykerhoff & Widmann.

The elevated structure is unusual in its use of 18-ft-dia hollow concrete piers, prestressing of the deck sections, and provisions for expansion.

About 3,000 ft of the elevated highway is divided into square or rectangular deck sections, each of which is supported by one of the 29 large piers. Width of the structure varies from 32 to 100 ft. Each pier supports 5,400 to 9,700 sq ft of roadway. The roadway is from 11½ to 24½ ft above ground.

The cantilever prestressed concrete deck slabs are about 12 in. thick at the edges. Designers called for the forming of the underside of each deck slab so as to produce an inverted pyramid (with parabolic sides) at each corner. The pyramids are connected by two deep diagonal ribs, which cross at the pier. The effect is that of a buttressed pier. The ribs are about 9½ ft deep at the pier.

Prestressing cables are located relatively close to the upper surface of the deck slab, because of predominantly negative bending moments. Conventional reinforcement of the diagonal ribs is made up of a series of orthogonal systems. Prestressing and reinforcement details both are subjects of a patent application made by Dykerhoff & Widmann.

Because of the unique character of the design, engineers built a 30:1 scale model of the structure, which was tested at the Federal Material Testing Center in Munich. Before acceptance, full scale load tests were conducted on the final structure.

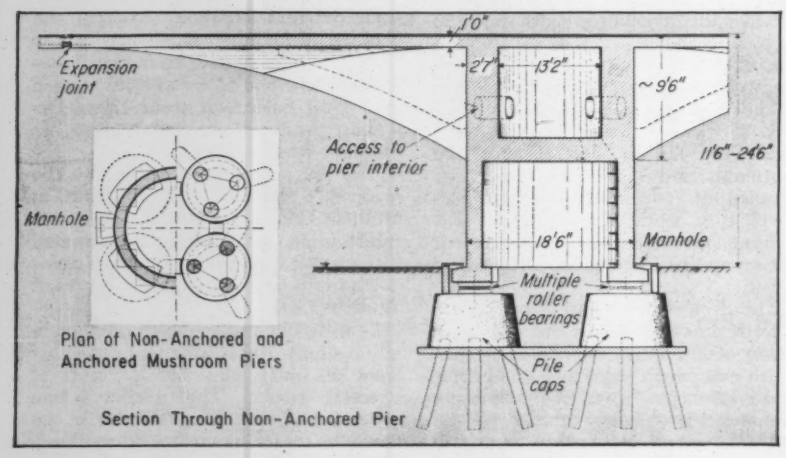
Designers chose a unique arrangement of the mushroom supports. Three piers form a group, with transverse expansion joints at intervals of 290 ft.

Each of the hollow reinforced piers is founded upon four concrete pile caps. The central pier of a group of three is anchored to the pile caps and fixed in position. The two outside piers rest on multiple roller bearings that allow movement in a longitudinal direction only. Manhole access is provided to the pier interiors to permit servicing and even replacement of the roller bearings.

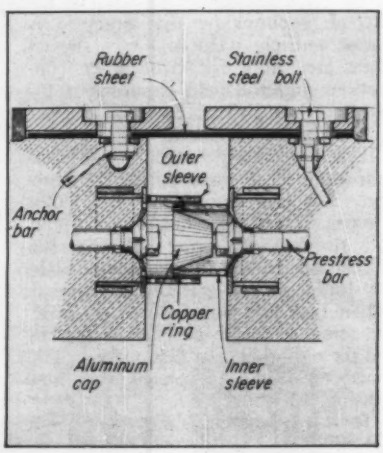
The contractors (Dykerhoff & Widmann, Gruen & Bilfinger, and Philip Holzman of Frankfurt) split the scaffolding used to support concrete forms down the center. Lower section was designed so that supports could be removed easily and members of different length inserted. This was a simple method of providing for height adjustments along the length of the roadway. Upper section of the scaffolding and the forms were standard.

Expansion joints between the 290-ft sections are provided with "transverse force" pins designed to take up any variations in length due to prestress, shrinkage, plastic flow, or variation in temperature. Dykerhoff & Widmann designed the sleeve-type pin connectors to resist transverse loads up to 30 tons. The cylindrical sleeves are attached to anchorages of opposing prestressing bars, with one sleeve sliding inside the other (see drawing). The bearing surface between the two sleeves is a copper ring that rests in a groove on the outside surface of the inner sleeve. The inner sleeve also carries a protective aluminum cap. The connectors are spaced about 1½ ft c-c across the width of the roadway.

A ⅛-in. sheet of rubber about 1½ ft wide covers each expansion joint. Each side of the rubber sheet is anchored to the road surface by a stainless steel strip held down by stainless steel bolts.



PIER PLAN and elevation show unusual design features.



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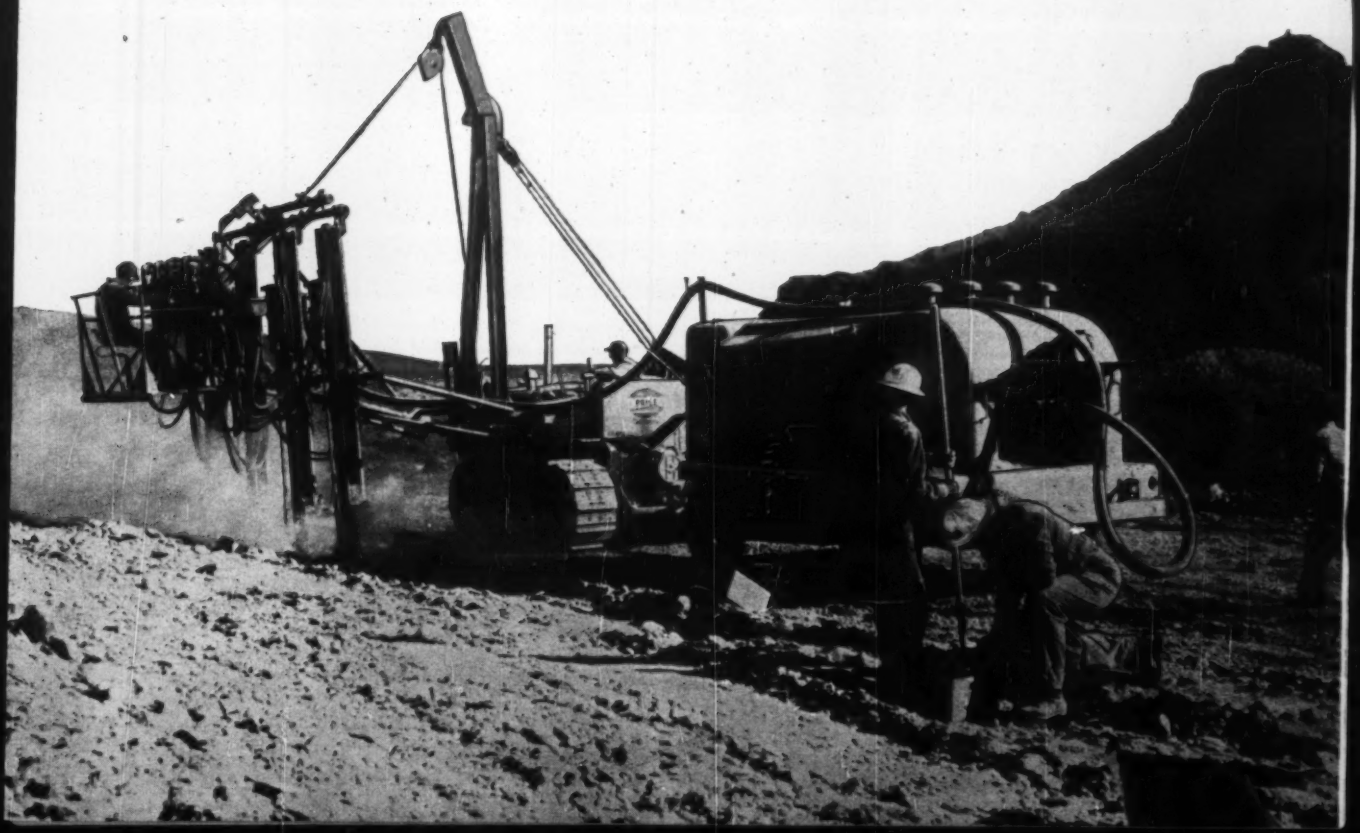

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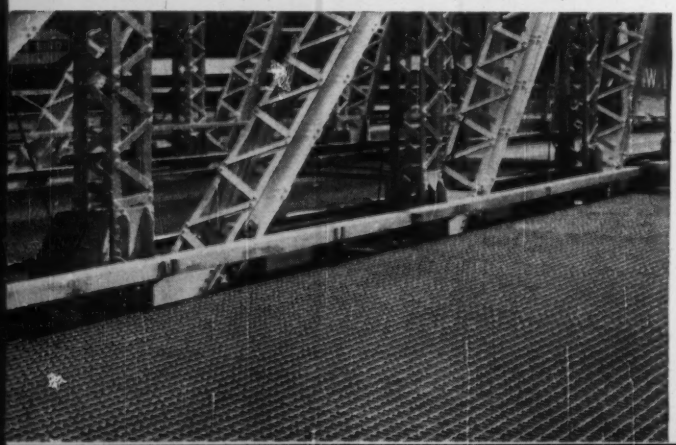

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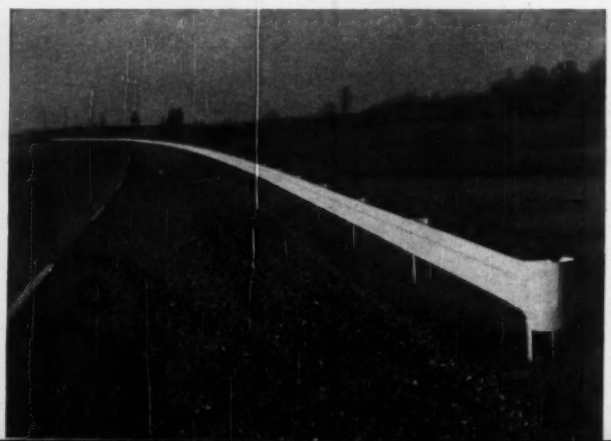

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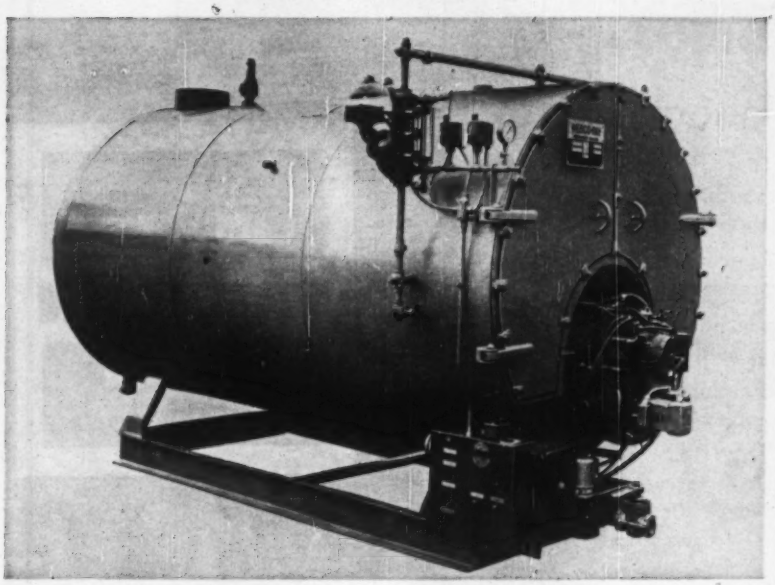

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(*New Products continued p. 54*)

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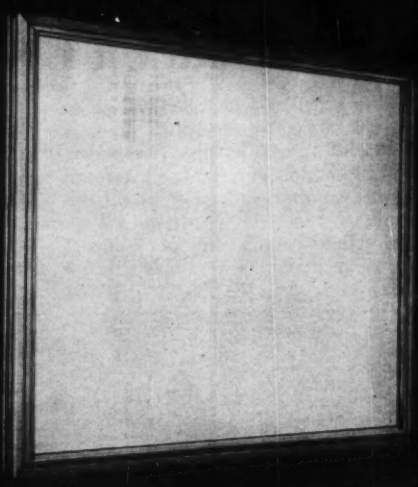

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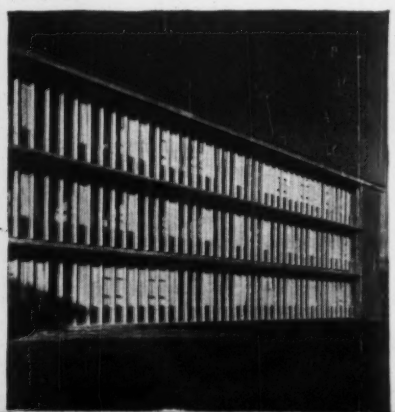

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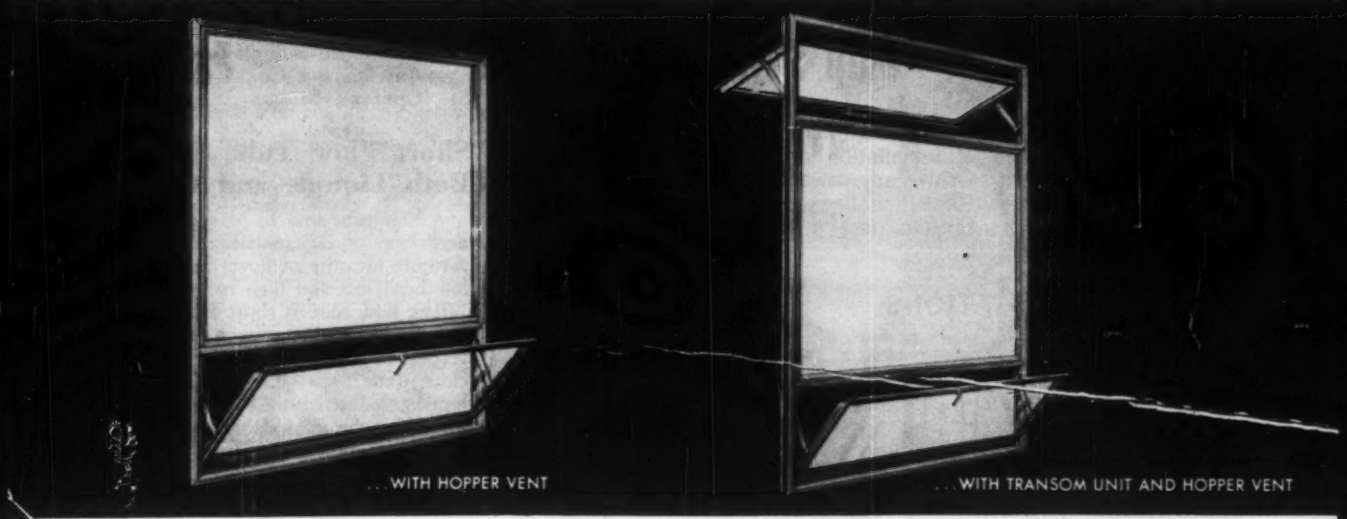

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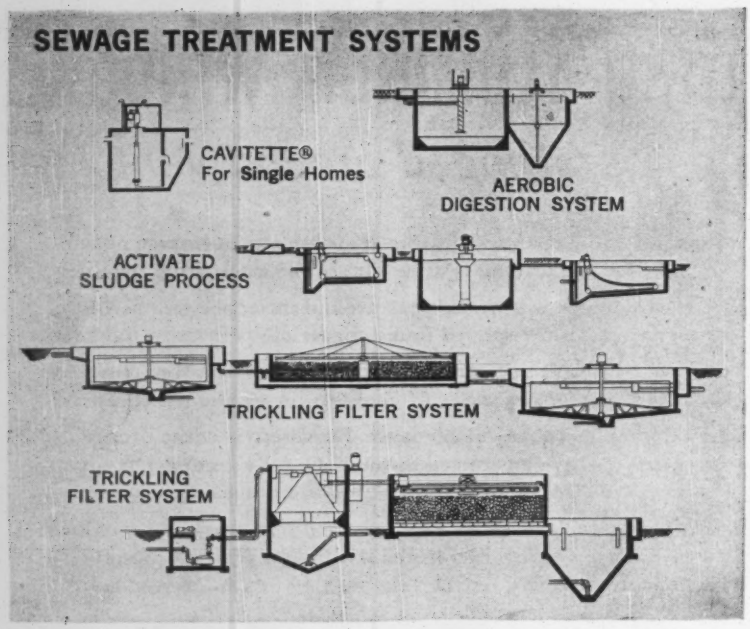

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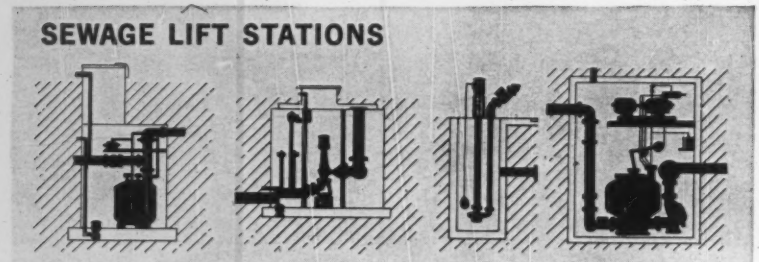

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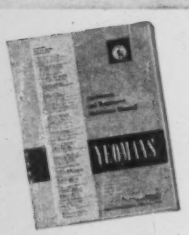

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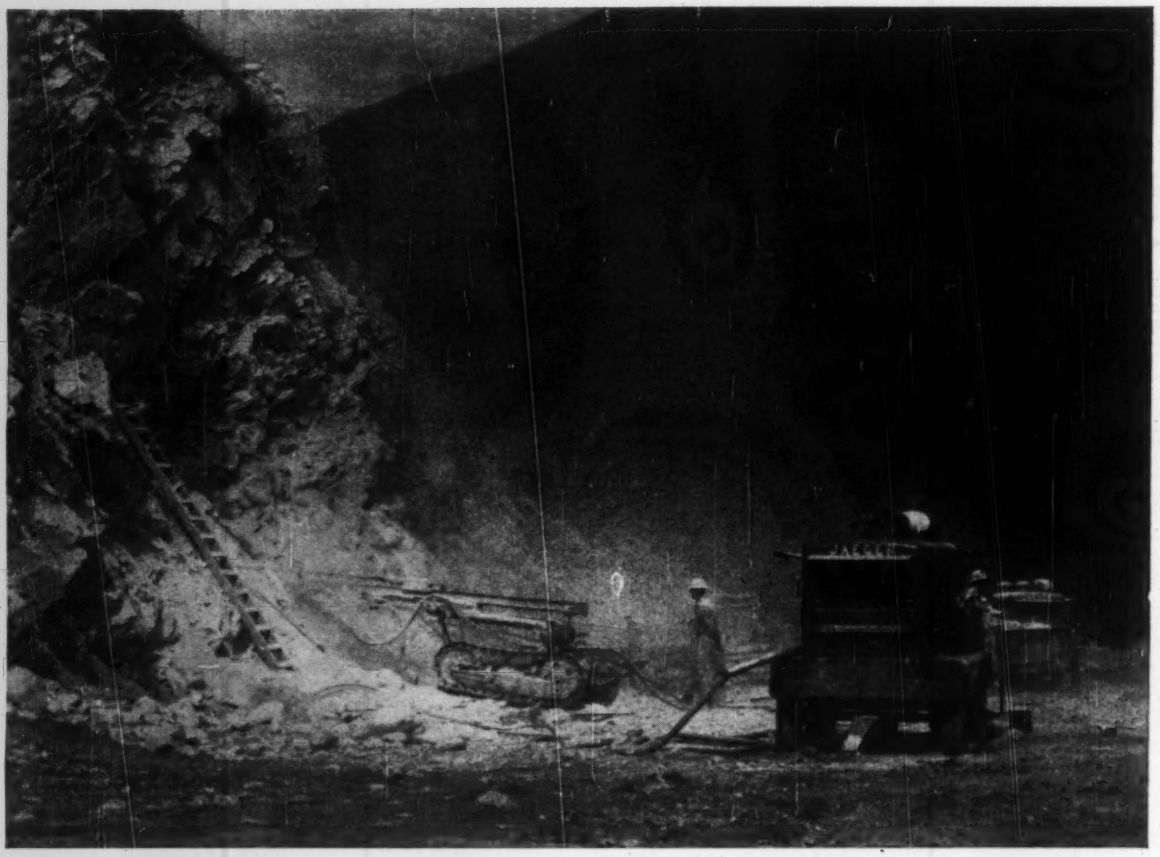
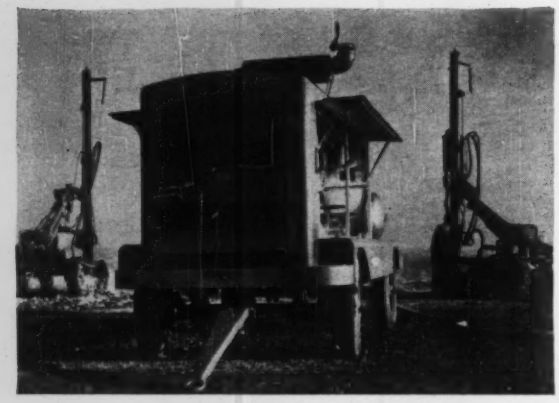


TOUGH ROCK. On this Rocky Mountain excavation nearly all of the rock was badly fractured and schisted as well as being highly abrasive. Bits lasted an average of only 15 feet. This job was done with crawler drills powered by a battery of Jaeger "600" compressors.

Jaegers cut air costs on tough 1,300,000 cu. yd. Rocky Mountain excavation



A Jaeger rotary "600", using the same GM 6-71 diesel engine as used in other "600" rotaries, delivers its rated capacity at 100 rpm slower speed — 1700 instead of 1800. In an 8-hour full-load operation, the Jaeger's engine does its work in 48,000 fewer revolutions.

Because it runs slower, it saves miles of engine piston travel and pounds of fuel every working day. The engine requires less maintenance . . . lives a longer operating life.

The compressor unit in a Jaeger lasts longer, too. 8000 hours without a vane replacement is not unusual. Ask any Jaeger owner; ask your Jaeger distributor — or send for new catalog JC-O.

← **LOW COST AIR FROM THIS "900", TOO.** The Jaeger "900" uses the same GM 6-110 diesel engine as other "900" rotaries, yet it produces its rated capacity at 100 rpm slower speed (1700 instead of 1800). Consequently, a Jaeger "900" produces more than 500 cf of air per pound of fuel. And it needs less maintenance, has a longer life. Other Jaeger models, from 75 to 365 cfm, are of comparable efficiency.

THE JAEGER MACHINE CO., 200 Dublin Ave., Columbus 16, Ohio

Jaeger Machine Company of Canada, Ltd., St. Thomas, Ontario

World-wide sales and service through Jaeger International Corporation, Apartado 137, Panama, R.P.

PUMPS • MIXERS • TRUCK MIXERS • PAVING MACHINES

ASTM President Plans Expansion

At the American Society for Testing Materials meeting last week the members considered names. They didn't settle on a new name for their organization, but they did select a new name for their presidency: A. Allan Bates.

The society and the president, both born about the same time, have grown into complex organisms—mutually suited to each other. ASTM, in its maturity, deals principally with establishment of standards, testing being merely a means to that end. Hence the search for a new name. Allan Bates has had many years of experience in developing standards as vice president for research and development of the Portland Cement Association.

The standards he will set for ASTM will be high—perhaps revolutionary.

Essentially, the American Society for Testing Materials is a tremendous association of committees (there were over 1,000 separate ASTM committee meetings in five days at the Atlantic City convention last week, and that represented only a fraction of the total roll, see p. 26).

Because of the knowledge and experience required of its members, each committee is a relatively autonomous body within the society, but the society's carefully constructed constitution and bylaws prevent any committee from becoming a headstrong group. Materials producers can never dominate a committee; materials consumers and people of such general interests as college professors and testing laboratories must have numerical superiority on every committee.

Still it is significant that producers and consumers of all materials of construction can come together in one privately supported and operated society. Representatives, both collaborative and competitive, come together in a single society in which the built-in competition among materials is developed in the interests and welfare of the nation.

To lead such a sensitive, essential and complex society is a challenge of the highest order. The job requires a man schooled in the intricacies of private enterprise and alert to the opportunities afforded to a mass-production system by new materials and better standards. Such a man is Allan Bates.

His course was charted when, as a teenager, he was a sampler and later chemical analyst in an Ohio steel mill. He won an A. B. from Ohio Wesleyan University in 1923. In 1925, Case Institute of Technology conferred on him a B. S. in Metallurgical Engineering, followed four years later by an M. S. His Doctor of Science came "magna cum laude" from the University of Nancy in France. He holds honorary degrees from Stevens Institute of Technology and Rose Polytechnic Institute.

A. Allan Bates

After he spent a year as a research metallurgist for National Malleable and Steel Castings Co., Case Institute called him back—this time as a professor. There he stayed for ten years until his reputation earned him a post as manager of chemical, ceramic and metallurgical research at Westinghouse Electric Corp. World War II took him away from Westinghouse twice—first on a special technical mission to South America for the State Department, then on a scientific intelligence operation for the U. S. Army in Germany.

His preparation for his new office was furthered in 1946 when he went to the Portland Cement Association as vice president of research and development. In that position, which he still holds, he began his association with ASTM.

What does the future hold for ASTM? Mr. Bates points out that the society is in one of its most critical periods. At present, its organization and many of its activities are virtually the same as they were decades ago—a situation, he notes, incompatible with the head-spinning recent advances in materials and engineering. Moreover, demand for materials and for exactness of properties has multiplied maddeningly. So much so that ASTM can no longer sufficiently cover the field with its present setup.

Consequently, a study group composed of principal committee chairmen and permanent staff members is tackling the job of reorganizing and reorienting the society. Such a staggering task may take years, but Mr. Bates expects to disclose the results of the requirements study this year.

To vitalize his organization, Mr. Bates proposes a campaign to increase the interest of top-level industrial management in ASTM. He says that our economy, characterized as it is by mass production, requires close standardization of materials to operate effectively. Mass industries cannot operate if they cannot order materials in quantity and get what they expect. Therefore, mass industries depend for their life on a reputable, competent national body capable of bringing to bear all the technical talents required to produce reliable, operable standards.

Few top executives, says Mr. Bates, have any idea of the importance of ASTM. Nor do they realize the consequences should it fail in its functions. Responsibility for standards would then of necessity pass into control of government agencies, thus forfeiting all the advantages of give and take provided by private enterprise.

Mr. Bates points out that within 40 years, according to demographers, we must duplicate the present amount of physical construction in the U. S. That will mean a vast market for materials, and continued keen competition among them, both economically and esthetically.

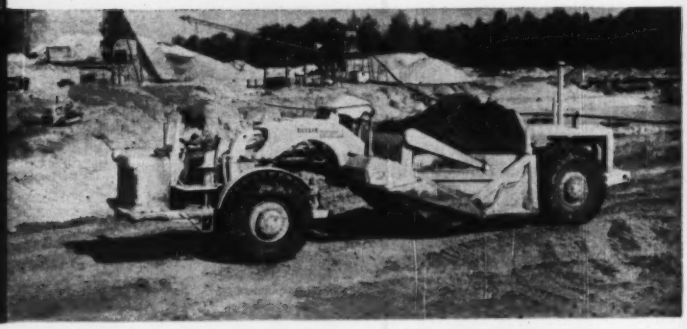
In concrete lies the greatest margin for improvement of all materials, Mr. Bates says. That's because concrete has been used so inefficiently in the past. He is convinced that a much larger portion of future construction will be in concrete.

The long-term bull market for materials will keep ASTM busy. No standard of material is ever complete in the sense that it will last for all time. The organization will continue to revise, expand and meet new needs. A year from now, when a new president comes to the society, ASTM may have its same old name but Mr. Bates will have helped make it a new society.

The TS-14

Excellent maneuverability and all-wheel drive make the TS-14 an ideal machine for land clearing, grading plant sites, etc. Self-loading sand and clay at this housing development, the "Twin" handled clearing and grading work for streets and home sites.

Low, wide bowl and 4-section cutting edge speed loading in any scraper material . . . blade sections are adjustable, reversible and identical. Ability to work without pusher assistance makes this "Twin" an efficient scraper for stripping jobs in sand and gravel operations, mines, and quarries.



GM GENERAL MOTORS EUCLID

EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE

all-wheel drive "EUC" is a one man spread!

another Euclid engineering advancement . . .
"Twin" puts more profit in every payload!

Here's performance and work-ability in a 14 yd. scraper . . . 20 yds. heaped . . . that's way ahead of any machine of comparable size. With two engines and separate Torqmatic Drives for each axle, the TS-14 provides all of the cost cutting advantages of all-wheel drive in a medium size scraper.

This new "Twin" self loads in practically any material and with a pusher for loading it's a big producer on even the toughest jobs. There's plenty of power and traction to get a heaped load in a hurry . . . to get out of the cut or borrow pit fast . . . and to really highball on the haul road. The TS-14 does a wide range of work, with or without a pusher, and is the most versatile scraper in its class.

Steep grades and adverse conditions that slow down or stall other scrapers are routine for the "Twin" . . . it can work more days per season and give you a bidding advantage on that next job or cut earthmoving costs on your present work. Get the performance facts from your Euclid dealer or write for the new catalog No. 555.

EUCLID DIVISION OF GENERAL MOTORS • CLEVELAND 17, OHIO

Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland

Missile Master for Pittsburgh Area

Buildings, gasoline, steam and electrical distribution systems bid lump sum; utilities in unit prices

Five Boro Construction Corp., New York City, took this $2,477,247 contract for Pittsburgh Defense Area missile master support facilities in Collier Township, Allegheny County, Pa. The award by the Corps of Engineers, Pittsburgh, (11.7% below the engineers estimate) was on the second low of eight bids. The low bid of $2,258,944 was irregular.

Work includes construction of buildings; gasoline, steam, gas, electric and street lighting distribution systems; water and sewage systems; landscaping; sidewalks; grading; paving, and related work and appurtenances.

Construction must commence within ten calendar days after notice to proceed. Completion schedules, set to permit occupation by personnel operating tactical facilities, are, with liquidated damages:

Structure or Facility	Compl Sch & Liq Dam/cal day
*Grading helicopter pad & acc rd	120 da/$25
*Pave West Main Rd, portions of parking areas at barracks, consol mess & BOQ, & acc rds to such areas, acc rd & serv areas for central htg plt, and all other util & acc rds so of West Main Rd & west of Penn St Hwy, exc rd to EM barracks & NCO qtrs 7A; incl subgr, shldrs, utils & structs under or in pvmt, storm sewers, manholes & conn storm inlets	165 da/$50
*Construct 1-story cent htg plt, incl wat, gas & san lines, elec serv & pri pwr line exten from exist 4160V line along hwy; sidewalks; 14 ft dlb swing acc rd gate	190 da/$50
*Construct portion of stm distr sys exten from central htg plt to exist manhole in tactical area east of St hwy, incl loops, temp closures on branches to provide stm to tact fac & return condensate to htg plt	190 da/$50
*Construct 1 story msnry conc sew pump sta w pumps, pipe, appurts & elec pwr serv, force main, san sew line; incl trenching & placing trench bkfl	190 da/$50
*Construct 2-story conc msnry EM barracks & NCO qtrs 7B & 7C; 1 story conc msnry consol mess; 2 story conc msnry hdqrtrs bldg; flagpole; all gas & water line; san & storm sewers; elec, str ltg & stm distr systs; sidewalks so of West Main Road & west of St hwy; exc serv conn & sidewalks to EM barracks & NCO qtrs 7A & bach off qtrs; elec pwr line xing hwy, & exten of pwr line to exist substa, to energize systems for commercial pwr source	220 da/$50
All remaining wks in bae sch, consist of 1 story EM barracks & NCO qtrs 7A, 2 story bach off qtrs; 1 story comb motor veh repair shop; 1 story field maint & R.U. shop; comb warehse; all conc msnry bldgs; gaso sys; wash stand; pvmt for park areas & rds; sidewalks; gas & wat lines; san & strm sewers; intercept ditches; elec, str ltg & stm distr systems; subdrain sys; fences; landscape; clear & grub, exc & embankmt. Also items excepted in parts 2 & 4	350 da/$50
Topsoil & seed areas in base sch & helicopter pad & acc rd	380 da/$50
*Construct 1 story conc msnry cold stor bldg; pvmt for access areas; shldrs; elec pwr serv; wat & san sew lines	350 da/$50
Construct 1 story conc msnry sales exch store, w pvmt for rds & park areas; shldrs; sidewalks; stm, elec & str ltg distr systems; wat & gas lines; storm & san sewers; incl clear, grub, exc, pl embankmts, & landscape north of West Main Rd	350 da/$50
Construct Type FE-6 fences	350 da/$25
Topsoil & seed areas north of West Main Rd, for sales & exch store	380 da/$25
Pvmt & shldrs for helicopter pad & acc rd	165 da/$25

The items in the preceding column which are preceded by an asterisk, include clearing & grubbing, excavation and placing of embankment, but need not include landscaping, seeding and topsoiling.

Class P concrete for slabs carrying vehicular traffic, must attain a minimum allowable flexural strength of 750 psi at 28 days. Minimum allowable compressive strength at 28 days, for other concrete, is:

Class	Minimum psi
A — reinforced concrete, except where otherwise specified	3,000
B — reinforced concrete work not otherwise indicated	2,500
C — nonreinforced concrete work	2,000
D — for concrete work where indicated	2,500

Minimum wages include: crane (excluding overhead), shovel, derrick & dragline operators, $4.30; electricians, $4.60; carpenters, $3.775; reinforcing iron workers, $3.975; common laborers on building construction, $2.575, on heavy construction, $2.75.

The bidding on this defense job included:

1	Acme Missiles & Constr Corp., Oceanside, L. I., bidding with Fullerton Constr. Co., Detroit, and Samuel N. Zarpas, Inc., Pittsburgh	$2,258,944
2C	Five Boro Construction Corp., New York City	2,477,247
3	Navarro Corp., Pittsburgh	2,967,646
EE	Corps of Engineers, Pittsburgh	2,806,912

Bids: 4-28-60 Items	Unit	Quantity	Unit Prices 1	2C
*Headquarters bldg	ls	job	$220,000	$182,670
*Consolidated mess, incl grease interceptor	ls	job	65,000	125,141
*EM barracks & NCO quarters 7A, 1 story	ls	job	85,000	111,808
7B, 2 story	ls	job	170,000	161,414
7C, 2 story	ls	job	170,000	161,599
Bachelor officers quarters, incl piling	ls	job	95,000	97,038
*Central heating plant	ls	job	136,545	150,133
*Comb motor veh rep shop, incl grease intercept w drain line extended 12' outside bldg line	ls	job	55,000	80,769
*Field maint & R.U. shop	ls	job	65,000	90,468
*Combined warehouse	ls	job	145,000	178,740
*Sewage pump station	ls	job	12,000	11,019
Clear & grub	ac	32.8	300.00	130.00
Excavation, uncl	cy	243,810	0.90	0.65
Embankment	cy	229,460	0.30	0.15
Subgrade drainage, 10" porous blanket	sy	15,500	1.50	3.00
pipe subdrains	lf	3,070	1.50	2.00
submains, tight joints	lf	1,660	2.00	3.00
Subbase crse, sel matl, 8"	sy	10,554	1.15	1.20
4"	sy	26,896	0.50	0.65
Base crse, sel matl, 4"	sy	4,996	0.90	0.90
Shoulders, sel matl, 5"	sy	3,763	0.85	1.10
Cr aggr base course, 8"	sy	32,454	1.85	1.85
Surf crse, consol cr stn, 3"	sy	4,806	0.75	0.78
Bituminous prime coat	gal	12,562	0.20	0.22
surface course, 3"	sy	9,957	1.70	1.62
1½"	sy	21,445	1.00	0.82
Conc pvmt base slab, 8"	sy	13	10.00	8.00
Highway guard fence	lf	410	3.00	2.80
Handrail for sidew steps	lf	24	5.00	5.00
Conc sidewalks	sy	1,101	5.00	6.00

Bids: 4-28-60 Items	Unit	Quantity	Unit Prices 1	2C
Washstand, compl incl conc slab & inlet, subbase crse, inlet grate, hydrant, drain & water lines to point 5' beyond slab	ls	job	$1,000	$500.00
Gasoline sys, service sta type, complete	ls	job	2,500	3,500
Steam distr sys, complete	ls	job	100,000	158,716
Elec distr & str ltg systems, complete	ls	job	88,000	122,400
Water lines, pipe 10"	lf	620	8.00	8.25
8"	lf	1,900	7.00	7.20
6"	lf	975	7.00	7.10
2½"	lf	445	5.50	5.55
2"	lf	120	5.00	4.80
1½"	lf	200	4.00	4.25
¾"	lf	82	3.00	2.75
CIP w mech jt, 8"	lf	655	7.00	7.20
6"	lf	480	7.00	7.10
fire hydrant	ea	12	320.00	330.00
Gas distr system, pipe 6"	lf	40	5.00	9.20
4"	lf	505	5.00	4.95
3"	lf	285	6.00	3.70
2"	lf	35	6.00	4.00
Sanitary sewers, pipe 8"	lf	1,840	6.00	5.40
6"	lf	660	5.50	5.05
CIP w mech jt, 8"	lf	1,365	7.50	8.80
6"	lf	198	7.00	7.50
MH, depth 4-6'	ea	3	300.00	320.00
6-8'	ea	6	400.00	400.00
8-10'	ea	2	450.00	450.00
10-12'	ea	3	600.00	650.00
12-14'	ea	2	700.00	750.00
18-20'	ea	1	900.00	950.00
force main, pipe 6"	lf	850	5.25	5.50
CIP, mech jt, 6"	lf	625	6.50	6.00
Storm sewers, pipe 30"	lf	460	16.00	16.90
21"	lf	105	9.00	10.40
18"	lf	100	6.00	9.95
15"	lf	150	5.50	7.25
12"	lf	970	5.00	6.35
8"	lf	145	4.00	5.40
6"	lf	6	3.50	5.05
CMP, bit ctd 36"	lf	270	18.00	16.65
30"	lf	290	15.00	14.90
24"	lf	385	12.00	13.35
21"	lf	40	9.00	11.60
18"	lf	675	6.00	11.05
15"	lf	100	5.50	8.70
12"	lf	420	5.00	8.45
8"	lf	35	4.50	6.65
MH, 4'⌀, depth 4-6'	ea	1	300.00	320.00
6-8'	ea	1	320.00	340.00
8-10'	ea	1	350.00	390.00
10-12'	ea	1	400.00	450.00
5'⌀, depth 8-10'	ea	2	500.00	550.00
10-12'	ea	1	600.00	670.00
16-18"	ea	1	850.00	950.00
inlet, type A	ea	4	300.00	300.00
type B	ea	25	300.00	325.00
type C	ea	3	250.00	275.00
type D	ea	1	250.00	290.00
headwalls, type A	ea	1	650.00	700.00
type B	ea	7	400.00	500.00
type C	ea	1	400.00	475.00
Riprap	sy	145	10.00	8.00
Interceptor ditch pvmt	lf	617	4.00	11.00
Fence, type FE 6	lf	397	4.00	4.10
gates for, 30' slide	ea	1	1,500	1,650
double swing, 14'	ea	1	250.00	270.00
18"	ea	1	275.00	325.00
relocate existing	ls	job	1,000	900.00
Topsoil, place	cy	10,818	0.35	1.00
Seeding lawn, class 1	ac	7.4	300.00	1,030
rye grass, class 2	ac	12.58	200.00	850.00
Landscaping	ls	job	3,500	1,368
Flagpole	ls	job	1,000	710.00
Additive Schedule A				
*Cold storage bldg, incl instal of govt-furnished ice making equipment	ls	job	70,000	60,590
Subbase crse, sel matl, 8"	sy	233	1.15	1.20
Base course, cr aggr, 8"	sy	233	1.85	1.85
Shoulders, sel matl, 5"	sy	55	0.85	1.10
Bituminous prime coat	gal	90	0.20	0.22
surface course, 3"	sy	227	1.70	1.62
Concrete sidewalk	sy	6	5.00	6.00
Electric power service	ls	job	200.00	600.00
Water pipe, 1½"	lf	65	4.50	4.25
Sanitary sewer pipe, 6"	lf	80	6.00	5.05

Bids: 4-28-60 Items	Unit	Quantity	Unit Prices 1	2C
Additive Schedule B				
*Sales exch store, incl grease intercept & installation of govt furnished equipment	ls	job	$81,093	$105,579
Clear & grub	ac	2.1	300.00	130.00
Excavation, uncl	cy	8,550	0.60	0.65
Embankment	cy	7,909	0.15	0.15
Subbase crse, sel matl, 8"	sy	2,052	1.15	1.20
4"	sy	713	0.50	0.65
Shoulders, sel matl, 5"	sy	498	0.85	1.10
Base course, 8" cr aggr	sy	2,765	1.85	1.85
Bituminous prime coat	gal	1,035	0.20	0.22
surface course, 3"	sy	1,920	1.70	1.62
1½"	sy	866	1.00	0.82
Concrete sidewalk	sy	147	5.00	6.00
Steam distr sys, complete	ls	job	12,000	18,478
Elec distr & str ltg systems, complete	ls	job	6,000	14,100
Wate[illegible], pipe 8"	lf	395	7.00	7.20
6"	lf	10	7.00	7.00
2½"	lf	15	6.00	5.60
Fire hydrant	ea	1	300.00	330.00
Gas distr sys, 3" pipe	lf	465	4.00	3.70
1" ϕ pipe	lf	35	3.00	2.80
San sewer pipe, 8"	lf	215	7.00	5.40
6"	lf	165	5.00	5.05
Storm sewers, 18" pipe	lf	155	6.00	9.95
8" ϕ pipe	lf	70	5.00	5.40
inlet type B	ea	2	300.00	325.00
Topsoil, place	cy	514	0.30	1.00
Seeding, lawn, class 1	ac	0.60	180.00	1,030
rye grass, class 2	ac	0.50	100.00	850.00
Landscaping	ls	job	1,000	204.00
Additive Schedule C				
Fence, type FE 6	lf	649	4.00	4.00
Additive Schedule D—Helicopter Pad and Access Road Pavement				
Subbase crse, sel matl, 4"	sy	1,600	0.50	0.65
Shoulders, sel matl, 5"	sy	604	0.85	1.10
Cr aggr base crse, 8"	sy	1,600	1.85	1.85
Bituminous prime coat	gal	603	0.20	0.22
surface course, 1½"	sy	1,508	1.00	0.82
Hwy guard fence	lf	97	3.00	2.80

* Complete with utilities extended to point5 ft outside buildin g lines

EM Enlisted men

Tennessee Highway Prices
Mixed, but show a 3-year downward trend, 1957-59

Selected Item	Unit	Average Unit Prices on Principal Items 1957	1958	1959
Exc, road & drainage	cy	$0.47	$0.45	$0.35
channel, uncl	cy	0.77	0.64	0.53
Water embankment	Mgal	2.32	2.13	1.49
Borrow exc, common	cy	0.60	0.52	0.61
uncl	cy	0.52	0.45	0.44
Ditches & shoulders	mi	353.34	4.1155	330.21
Traf bound grav or chert surf rdwy	cy	2.06	2.26	....
	t	....	....	1.53
Cr stn bit conc base, min aggregate	t	5.46	5.89	4.70
asph cement	t	32.96	34.36	30.97
Bit matl, prime coat	t	44.89	44.43	42.01
Hot bituminous seal coat bituminous material	t	35.91	38.93	37.40
min aggregate	t	3.18	3.55	3.46
Single bit surf treatment bituminous material	t	36.64	41.12	37.34
Asph conc surf course min aggregate	t	6.13	6.51	5.34
asph cement	t	32.47	34.06	30.23
tack coat	t	39.36	43.41	40.36
Conc, cl A	cy	57.84	56.75	49.73a
bridge	cy	60.91	59.56	58.72
Steel bar reinf	lb	0.14	0.14	0.12a
bridge	lb	0.14	0.13	0.12
Conc pipe culv, 18"	lf	4.35	4.05	4.30
24"	lf	5.96	5.57	5.62
30"	lf	8.14	8.20	7.86
36"	lf	10.30	10.38	11.02
CMP culv, 15"	lf	3.31	3.91	3.48
18"	lf	3.94	4.82	3.84
24"	lf	6.04	5.87	5.84
arch culv, 18 x 11"	lf	3.58	3.81	3.36
22 x 13"	lf	4.15	4.52	4.05
Markers	ea	6.89	6.84	6.12
Concrete curb	cy	51.46	58.24	54.94
comb curb & gutter	cy	42.31	40.85	43.41
Rubble stn riprap, plain	cy	15.42	17.45	17.05

a Roadway

INSTANT LATERAL DIGGING WHEEL SHIFT LICKS TIGHT-QUARTERS TRENCHING JOB

THE CLEVELAND JS-30 TRENCHER, with instant lateral shifting and power tilting of its digging wheel, got high daily trench production for McShane Contracting Co. of Pittsburgh on a water line job that would have slowed an ordinary trencher to a snail's pace. The trench had to be dug in an extremely narrow road shoulder hemmed in by poles, trees and heavy growth on side slopes rising sharply within less than six feet of the pavement's edge.

Able to dig behind either crawler or anywhere within its 6-foot width, the JS-30 easily dug past the obstructions in the narrow shoulder. Lateral position of the crawlers was changed as necessary to get by obstructions, while the JS-30's digging wheel was power-shifted laterally, keeping trench digging right on line. Power-tilting of its digging wheel allowed the JS-30 to dig straight vertical trench with one track higher than the other on the side slopes, without blocking or cribbing.

THE JS-30—A TRENCHER OF AMAZING UTILITY

- Digging wheel power-shifts 5' from side to side
- Digs trench flush with parallel pavement, curbs, etc.
- Digs trench virtually flush with trees, poles, fences, etc.
- Digs vertical trench on side slopes, cuts blocking, cribbing
- Excavates bell holes, saves on trench width
- Digs 11"-24" wide, to 5½' deep; digs to 6' wide with power-shifting of wheel
- 100% control of all operations at operator seat.

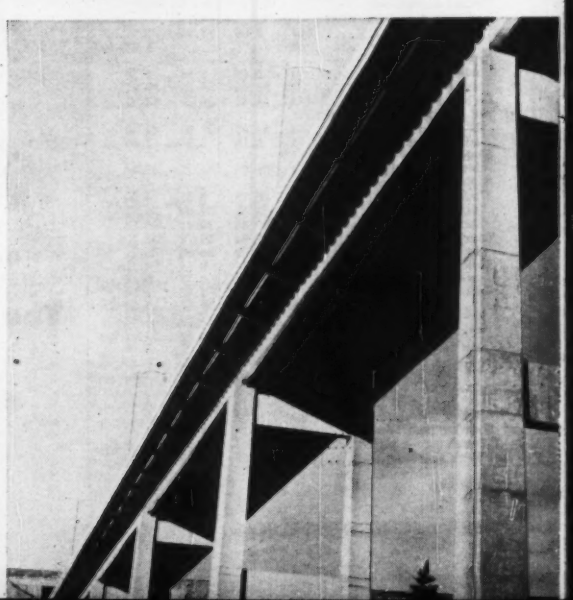
Get the complete story on the JS-30 from your distributor

The CLEVELAND TRENCHER Co.

20100 ST. CLAIR AVE. • CLEVELAND 17, OHIO

Good Everywhere

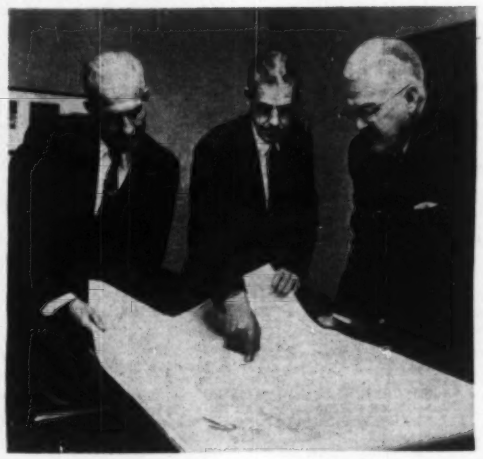
New Maple Street Bridge, Spokane, Washington, designed in steel for economy and fast erection.



Underside of Maple Street Bridge showing built-up steel members. Steel can be readily welded, flame-cut, riveted or bolted.

This mark tells you a product is made of modern, dependable Steel.

Steel



Admiral Carl A. Trexel, Vice-President, Leslie A. Helgesson, Vice-President, and Ralph A. Tudor, President, discussing plans for a steel bridge.

Steel specified in 80% of bridge work

at Tudor Engineering Company, Consulting Engineers, San Francisco

Some of the recent outstanding bridges this firm has designed include the Dalles and Umatilla Bridges across the Columbia River in Oregon; the Maple Street Toll Bridge over the Spokane River at Spokane, Washington; and another toll bridge which spans the Port Washington Narrows at Bremerton, Washington.

Of these, the Maple Street Bridge is the most outstanding example of the use of structural steel in short-span bridge design to gain the advantages of economy and rapid construction. The bridge is 1,713 feet long and is built of steel with four 150-foot spans, two 125-foot sections and five 100-foot sections. It supports four roadways.

Steel reduces costs. According to Mr. Ralph A. Tudor, President of Tudor Engineering Company, steel construction offered a great advantage for this bridge because a crew could swing a section into place, bolt it to the supports, and then move ahead to the next section. No falsework was involved, the erection was fast, clean and safe, and the design was the most economical solution.

Steel saves design time. Steel is a familiar material and there are no unknown factors. This is important because the designer is looking for reliable performance. The new electronic calculators can be used to work out mathematical problems quickly in steel bridge design.

Steel permits increased headroom. New highway regulations are calling for increased headroom and this can be obtained most economically with steel. Bridges can be designed with higher strength steel, such as USS MAN-TEN, TRI-TEN or "T-1" brands, that add valuable inches of clearance with less weight and reduced foundation costs.

Steel production facilities increased. The steel industry has greatly expanded its facilities for manufacture of structural shapes and plates. You can confidently design in steel—the material you know best, and the material that offers most—knowing it will be available.

USS, MAN-TEN, TRI-TEN and "T-1" are registered trademarks

USS Steels for Bridge Design

Structural Carbon Steel 33,000 psi minimum yield point	**USS MAN-TEN High Strength Steel** 50,000 psi minimum yield point
USS TRI-TEN High Strength Steel 50,000 psi minimum yield point	**USS "T-1" Constructional Alloy Steel** 100,000 psi minimum yield strength

USS

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company

United States Steel

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.,* truckload del.* per block		CONCRETE Ready Mixed 1:2:4 del. per cy
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	50 cy & over
Atlanta	$4.38a‡	$3.88a‡	$3.68a‡	$3.10a‡	$3.10a‡	$1.85‡s	$2.18s	$2.33s	$1.65r	$1.75r	$0.175o	$0.21o	$13.75q
Baltimore	4.42a	3.91a	3.56a	2.80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	.18a	.18a	13.50ou
Birmingham	4.43c	3.50c‡	.....	2.53ns	2.53ns	2.13ns	2.75s	2.75s	1.65d	1.75d	.19	.19	14.25q
Boston	5.83ip	4.52ap	4.90imp	3.00qsz	3.00qsz	3.00qsz	1.75qsz	1.85qsz	.....	.....	.23o	.275aq	15.00q
Chicago	4.52ag	4.02ag	4.15g	3.78‡e	3.78‡be	4.13‡be	3.95‡be	3.95‡be	2.25‡s	2.25‡s	.26‡e	26‡be	13.50s
Cincinnati	4.84c	4.34c	4.31c	2.29‡cu	2.34‡cu	2.44‡cu	2.55‡cu	2.74‡cu	1.80u	1.80u	.19o	25ae	15.00
Cleveland	4.77/.84‡	.....	4.19‡ae	.....	2.25ae	1.75ae	2.70fy	2.70fy	2.20‡f	2.20‡f	.....	23f	17.25u
Dallas	3.65a	3.25a	3.53a	2.65‡a	2.75‡a	1.90‡	2.47	2.67	.....	.....	.....	.285	12.10z
Denver	4.89a	4.39a	4.89	1.95‡	2.15‡	1.42‡b	.....	3.00‡z	.....	.....	.25	.27ae	11.90
Detroit	4.50a	3.89aqq	3.97a	4.50‡abm	4.50‡abm	4.25‡abm	3.75‡abm	3.75‡abm	2.53aqae	2.53aqae	.24w	.27‡au	15.50eas
Kansas City	4.52a	3.92a	4.30a	.....	.....	1.85‡a	2.00‡a	2.00‡a	.....	.....	.22a	.26c	14.50
Los Angeles‡‡	5.12ch	4.68ch	5.60c	2.56‡af	2.76‡af	2.41‡af	2.41‡af	2.46‡af	.....	.....	.255f	.385	12.46hz
Minneapolis	4.66a	4.15a	4.25a	2.70‡ae	2.70‡ae	1.60‡ae	3.95‡ae	3.95‡ae	.....	.....	.20q	.....	14.20f
Montreal	3.36‡det	3.11‡det	3.72‡det	1.90‡at	2.15‡at	2.40‡a	1.90‡†	2.15‡†	2.00†	2.00†	.20†	.28‡†	10.80ak‡†
New Orleans	4.17b	3.65b	3.97b	2.61b	2.61b	2.16b	.....	.....	1.65d	1.75d	.25r	.25	14.00o
New York	4.68a	4.18a	3.75a	.....	3.20bk	2.30blbk	2.29blbb	2.29blbb	.....	.....	.265mo	.32bso	17.60ay
Philadelphia	4.49‡ae	3.99‡ae	3.51‡e	1.95‡a	1.95‡a	1.55‡a	2.00‡a	2.30‡a	2.25‡a	2.25‡a	.....	.225	13.90s
Pittsburgh	5.65bjk	4.62bj	5.00bjl	2.68‡aq	2.68‡aq	3.08‡aq	2.00‡aq	2.00‡aq	2.10w	2.10w	.22rz	.22rz	16.15o
St. Louis‡‡	4.54a	4.04a	4.24a	3.40‡as	3.40‡as	2 40/3.40‡as	1.75s	1.75s	.....	.....	.26‡s	.32‡co	13.65/14.10t
San Francisco	4.34c	3.79c	4.78c	2.02	2.02	2.12	2.17	2.17	.....	.....	.24	.28cl	13.00cw
Seattle	4.47‡a	3.75ap	4.65a	4.25‡bm	4.25‡bm	4.25‡bm	4.50‡bm	4.50‡bm	.....	.....	.324s	.45cs	14.70f
Toronto	5.20i	3.84t	5.20i	2.40	2.40	2.05	2.40	2.40	2.40	2.40	.26	.285cu	13.75q

‡ Delivered. * Prices incl. dealers discount except as noted. # Add 4% sales tax ## Add 2% intrastate sales tax. R Revised. † Plus 8% Mun & Prov tax.

CEMENT: *a Less 10¢ disc. 15 days. *b Less 2% disc. 15 days. *c Less 10¢ disc 10 days. *d 10¢ disc. 20 days. *e Truckload lots. *f Fob mill, add $14.58 to $21.31 per car switching charges. *g fob mill + freight. *h LCL. *i Less 2% disc. 10 days. *j Truck lots, fob yard. *k 100 bag lots *l over 150 sacks. *m Sold in bags only. *n Less 5% disc. 30 days. *o Plus 50¢ for Sat. del. *p 5-8 ton truckload. *q F.o.b. m ill *s In bags & bbl. Only *t min. 7 tons

SAND, GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons up. *d Less 5¢ disc. 10 days. *e Less 2% disc. 10th. *f Less 2% disc. 15th. *g Less 5% for cash. *h Less than 5 tons. *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars *q F.o.b. yard. *r less 5% disc. 15th. *s Less 2% disc. 10 days. *t Less 10¢ disc. 10 days. *u Less 5¢ disc. 10 days. *v Less 2% disc. 15 days. *w Less 10¢ disc. 15 days. *x Incl. 25¢ switch. charge. *y F.o.b. dock. *z 5-8 tons. *aa Less 5% disc. 15 days. *bb Less 2% 25th of month

CONCRETE BLOCK: *a Cinder. *b Waylite. *c Haydite. *d Celocrete, *e 5¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *j F.o.b. plant San Rafael. *m F.o.b. yard. *n 8 x 8 x 16. *o Less 2% disc. 10 days. *p Less 2% disc. 10th. *q Less 5% disc. 10th. *r Less 2% disc. 15 days. *s Less 2% disc. cash. *t Siporex, 7 x 8 x 16. *u Less 5% disc. 10 days. *v Less 12% disc. 15th.

READY MIXED CONCRETE: *a 6 cu yd or over del. Man. *b 25 cu yds or more. *c 10-100 cy. *d 1-3 mi. zone add 15¢ for ea. add'l 1-mi. zone. *e 3,000 lb comp. *f 2,500 lb. comp., less 5% disc. 30 days. *g Less 25¢ disc. 15 days. *h Less 50¢ for cash *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 6% mun. & prov tax. *l 1:2¼:3¼ base price. *m F.o.b. yard. *n Plus escalator clause. *o Less 2% disc. 15 days. *p Less 50¢ disc. 15 days. *q Less 2% disc. 10 days. Add 50¢ per zone. *r 2000 wgt. *s Less 5% disc. 10 days. *t Incl. 50¢ heating. *u Less 2% disc. 15th. *v Sat. del.+50¢. *w 10-100 cy. *x Del in zone 20-B. *y less 25¢, 10 days. *z less 1% in 30 days. *aa 6 bag mix

CURRENT MAXIMUM PRICES AT CEMENT MILLS: Subject to 10¢ discount, 15 days. For paper bags add 50¢ per bbl., not refundable *Prices guaranteed through December 31, 1960*

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.55	Buffington, Ind	$3.55	Steelton, Minn	$3.60	Muskegon, Mich	$3.60	Toledo, O	$3.45
Clinchfield, Ga	3.55	Independence, Kan	3.35	Leeds, Ala	3.40	Saginaw, Mich	3.60	Milwaukee, Wis	3.50
Kingsport, Tenn	3.55	Hannibal, Mo	3.50	Duluth, Minn	3.45	Wyandotte, Mich	3.60	Green Bay, Wis	3.50
West Des Moines, Iowa	3.60	Northampton, Pa	3.50	Hudson, N. Y	3.50	Buffalo, N. Y	3.55	Ironton, O	3.55
Nazareth, Pa	3.50	Universal, Pa	3.60	Alpena, Mich	3.50	Oswego, N. Y	3.60	Montreal, Can	2.81
Bath, Pa	3.50	Waco, Tex. (+ 10¢ tax)	3.35	Detroit, Mich	3.60	Cleveland, O	3.65	W. Winfield, Pa	3.60
Lesley, Pa	3.50	Glant, S. C	3.55	Howes Cave, N. Y	3.50	Alsen, N. Y	3.50	Security, Md	3.50

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	e	e	e	$28.70PS	$45.00PS	$0.2740PS	$0.2358	$0.1308usS	$0.245usS	$0.1258S	$0.1328S	$0.245
Baltimore	e	e	e	21.00r	.....	.09r	0.18r	.09iwE	.18iwE	.095r	.10r	0.19r
Birmingham	.....	66.00i	.....	25.12	25.69O	.1069	0.1093O	.1162w	.1188Ow	.1006O	.1069	0.1093O
Boston	.....	.....	.....	22.00apS	46.00apS	22.00asS	46.00asS	.105awF	.22awF	.14aOR	.15OR	.....
Chicago	150.00‡a	95.00‡ab	3.95/4.00‡af	22.00b	32.00b	20.40bv	30.40bv	.10bwH	.18bwH	.08b	.....	.....
Cincinnati	.....	.....	.....	26.00SU	.....	26.00ff	.....	.1165wSU	.....	.109	.1265	.....
Cleveland	.....	89.50‡d	6.30	26.00tA	.....	26.00rsA	.....	.1165twAF	.....	.....	.1265tA	.21A
Dallas	e	40/80p	e	26.90	46.35	.1138	.1983	30.50	52.45	.1100	.1138	.1983
Denver	.....	82.00a	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	119.00	.....	31.50R	.....	32.20wR	.....	30.24wIR	.....	27.84	.....	.24
Kansas City	e	e	e	17.00e‡	.....	17.00es	.....	.085cwJ	.....	.065e	0.10	.....
Los Angeles‡	e	e	e	21.50dmz	.....	21.50dnz	.....	21.50dKz	.....	22.00dnaa	23.90jXs	26.30jXs
Minneapolis	.....	.....	3.73h	23.70	.....	23.70s	.....	.105w	.....	0.95	.1375bb	.....
Montreal	e	e	e	30.50n	43.60n	.167n	.211n	17.80nuE	22.20nuE	.155n	.242n	.27nX
New Orleans	e	e	e	20.00e	.....	20.00es	.....	.095ew	.....	.085eB	.095eBL	.1905eB
New York	.....	.....	3.70f	20.99mO	42.95mO	20.99mO	42.94mO	9.61uF	19.01uF	.....	9.68u	19.11u
Philadelphia	.....	.....	.....	21U	.....	21U	.....	.095Uw	.....	.095U	.....	.....
Pittsburgh	60.00k	95.00m	6.35n	31.20is	.....	31.20ius	.....	.1403tS	.....	.142S	.1403i	.....
St. Louis‡‡	.....	.....	.....	19.74j	21.65	.1825f	.1825	.09fw	.092fw	0.165f	.1825O	.30R
San Francisco	.....	70.00	.....	22.50qdd	41.00qdd	22.50qkdd	40.00qkdd	22.50qNdd	46.50qNdd	23.25qWdd	23.50qXdd	.2023qXdl
Seattle	.....	.....	.....	24.00z	47.00k	33.00zcc	38.50	25.50KE	.....	28.75hsY	25.80hsX	49.80hsX
Toronto	.....	139.00/t	4.50f	38.90	59.01ee	0.2075	0.2773ee	0.222w	0.2704wee	0.233	0.212Zee	.268Zee

‡ Delivered. # Add 4% sales tax. ## Add 2% intrastate sales tax. R Revised.

PAVING BRICK & BLOCK: *a Less 2% disc. 10th. *b 3 x 3¼ x 8. *c 2¼ x 8¼ x 4. *d Truckload lots. *e Not used. *f 2" interior 6 lb tr. *g Less $1/Mdisc. 15th. *h 2" tr. 8 lb. *j 3 x 3¾ x 8½. *j 2½", 6 lb. tr. *k Used. *l Redshale. *m Pine oak $6.57. *n Truck del. *o Less $1 M disc. 15 days. *p Used: $40; new: $80.

ASPHALTS: *a F.o.b. refinery, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Secundo. *e F.o.b. Baton Rouge. *f F.o.b. Hartford, Ill. *g F.o.b. refinery, Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. *l Less than 100 penetr. *m 40/300 penetr. *n F.o.b. refinery, Montreal. Fed. tax included: add 6% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 150/300 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks *y F.o.b. Oakland *z F.o.b. Edmonds. *A F.o.b. refinery, Cleveland, *B F.o.b. Destrehan, La. *E RC. *F Also RC. *G Also MS *H RC 0-5 incl. *I MC 4. *J MC, RC $0.095. *K MC 3, 4, & 5. *L MS. *M MC 1-5, RC 1-5, $0.0915. *N MC 3. *O Truckload. *P F.o.b. refinery, Atlanta. *Q F.o.b. Eldorado, Ark. *R Delivered within 50 mi. *S Less 2% disc. 10 days, net 30. *T Less 1% disc. 10 days. *U F.o.b. refinery. *V Less 2% disc. 15 days. *W SC 2. *X RS 1. *Y SC 1. *Z Incl. 10% Sales Tax. *aa SC 3, 4, & 5. *bb RS 3. *cc In used drums. *dd less disc of $1 ton. ee 45 Imp. gal. drums *ff 60-150 penetration

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, June 23; Next, July 21.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, June 30; Next, July 28.
- Wage Rates, Building Board Insulation: Last, June 30; Next, July 28.
- Iron & Steel Products, Pipe: Last, June 16; Next, July 14.

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ **R. I., Providence**—SCHOOL—BA 7/12—City, City Hall, Camden Ave. elementary school. Extended Date. $1,000,000. Joseph M. Mosher & Son, Inc., 77 Washington St., Providence, R. I., archts. CD 6/2.

▲ **Mass., Everett**—CITY HALL—BA 8/2—City, City Hall, Broadway, Church and Webster Sts., $1,350,000. Plans deposit $100. Harold M. Turiello, 1025 Revere Beach Parkway, Revere, Mass., archt. Robert D. Goodoak, 80 Boylston St., Boston, Mass., engr. CD 3/18/59.

HEAVY CONSTRUCTION—LB & CA

▲ **M. A. Gammino Constr. Co.,** 728 Valley St., Providence, R. I. LB $1,297,055 est. $1,500,000, bulkhead extension, Municipal Wharf, PROVIDENCE, R. I. City, City Hall, Providence, R. I. Fenton Keyes Assoc., 202 Washington St., Providence, R. I., archts.-engrs.

BUILDINGS—LB & CA

▲ **Thomas O'Connor & Co., Inc.,** 238 Main St., Cambridge, Mass., CA approx. $3,000,000 NOVITIATE, Jefferson Point Rd., IPSWICH, MASS. Sisters of Notre Dame, Newton St., Waltham, Mass. Chester F. Wright, 681 Main St., Waltham, Mass., archt. CD 11/23/59.

▲ **Crossroads Development,** c/o Munson & Mallis, Inc., archts., Frost St., Springfield, Mass., Owner Builds, $3,000,000 MOTEL, RESTAURANT, etc. Boston Rd. and Parker St., SPRINGFIELD, MASS. CD 4/11.

▲ **Walsh Bros.,** 150 Hampshire St., Cambridge, Mass., CA Approx. $2,400,000 REGIONAL HIGH SCHOOL and CONVENT, ATTLEBORO, MASS. Roman Catholic Diocese of Fall River, 368 Main St., Fall River, Mass. Bids June 15. Awarded June 23. CD 6/20 under LB.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ **N. Y., Valhalla**—COLLEGE, etc.—BA 7/13—Westchester Community College, Rm. 508, County Office Bldg., White Plains, engineering technology center, dining and student personnel bldg., physical education bldg., academic bldg., science, library, fine arts center and administration bldg. $6,000,000. Robert A. Green, Tower Hill, Tarrytown, N. Y., archt. Guy P. Panero, 630 Third Ave., New York 17, N. Y., mechanical engr. Seeley Stevenson, Value & Knecht, 101 Park Ave., New York 17, N. Y., structural engr. Lee Moore, Harwood Bldg., Scarsdale, N. Y., site planning. CD 5/16, under Commercial Buildings.

† **Md., Baltimore**—VEHICLE MAINTENANCE FACILITY—BA 8/24—Post Office Dpt., Baltimore Region, Main Post Office Bldg., Rm. 2012, Baltimore, vehicle maintenance facility, Maryland Ave. and Oliver St. (lease-build).

▲ **N. Y., Ithaca**—APARTMENTS—BA 7/19—Cornell University, (selected list bidders), 29-two story apartments. $2,500,000. Von Storch & Burkavage, Waverly, Pa. and Beardsley & Beardsley, 64 South Ave., Auburn, N. Y., archts. CD 5/19/55.

▲ **Pa., Slippery Rock**—GYMNASIUM—BA 7/20—General State Auth., 18th and Herr Sts., Harrisburg, gym and field house Slippery Rock State College, $1,600,000. Plans deposit $75. Trefry Engineering, P. O. Box 230, Butler, engr. CD 6/28, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **Teaco Constr. Corp.,** 400 Bacon St., New York 59, N. Y., LB $1,073,372, (5 bidders), rehabilitation Soldiers and Sailors Monument, Riverside Dr. opposite W. 89th St., Riverside Park, Contr. M-71-159, Manhattan Boro, NEW YORK, N. Y. Comr. Parks, Arsenal Bldg., Central Park, 64th St. and 5th Ave., New York 21, N. Y. Bids June 23. CD 6/16.

▲ **LaFera Constr. Co.,** 149 Verona Ave., Newark, N. J., CA $1,195,992, (9 bidders), Contr. 3, laterals, HANOVER, N. J. Hanover Sewerage Auth., Whippany, N. J. Bids Feb. 24. Grand total $2,510,889. CD 3/1, under LB;
Baylor Constr. Co., 360 Lexington Ave., New York, N. Y., CA $637,000, Contr. 1, treatment plant, (Hanover, N. J.);
D'Anunzio Bros., Scotch Plains, N. J., CA $677,897, Contr. 2, interceptors, (Hanover, N. J.).

▲ **John F. Casey & Co.,** P.O. Box 1888, Pittsburgh 30, Pa., LB $2,935,364, (3 bidders), roadway, structures, north approach, New West Highway Bridge over Potomac River, vicinity 14th St. N.W., WASH., D. C. D. C. Govt., Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C. Bids June 23. CD 6/3.

▲† **De Felice & Son, Inc.,** Nettleton Ave., New Haven, Conn., CA $1,700,000 repairs to runway 13-31, U. S. Naval Air Station, NBy 21545, PATUXENT RIVER, MD. Area P. Wks., Chesapeake, U. S. Naval Weapons Plant, Wash., D. C. Bids June 8 CD 6/10 under LB.

BUILDINGS—LB & CA

▲ **Lawrence J. Rice, Inc.,** 61-40 Maurice Ave., Maspeth, N. Y., CA $1,548,000, HOSPITAL addn., PORT JEFFERSON, N. Y. John N. Mather Memorial Hospital, No. Country Rd., Port Jefferson, N. Y. Bids May 5. CD 6/2, under LB.

▲ **Gomet Constr. Corp.,** 31-07 21st St., Long Island City 6, N. Y., CA Est. $1,500,000, 1 story, 200,000 sq. ft. INDUSTRIAL PLANT, Michael Dr. off Jericho Turnpike, SYOSSET, N. Y. Ruser Realty Corp., 53 Turf Lane, Roslyn Heights, N. Y. Daniel Metliz Assoc., 31-07 21st St., Long Island City 6, N. Y., archts.-engrs.- Columbic Corrugated Container Corp., lessee.

▲ **Anthony Tavolacci,** 261 W. Lincoln Ave., Yonkers, N. Y. Owner builds, $2,000,000, 60 HOMES, Central Ave., Crestwood Section, YONKERS, N. Y.

▲ **B. Bornstein & Son,** 2027 Arch St., Phila. Pa., LB $1,009,000, Kenderton Elementary SCHOOL 15 and Ontario Sts., PHILA., PA., Bd. Educ., 21 and Parkway Sts., Phila., Pa. Bids June 21. CD 6/15.

▲ **Samuel N. Zarpas, Inc. and Fullerton Constr. Co.,** P.O. Box 4457, Pittsburgh 5, Pa., LB $1,270,000, PHYSICAL EDUCATION for University of Pittsburgh, PITTSBURGH, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids June 22. CD 5/16.

▲ **Ranchland Builders, Inc.,** 1609 E. Wadsworth Ave., Phila. Pa., Separate Contracts, $4,520,000, 226 RESIDENTIAL DEVELOPMENT, Fitzwater Rd. etc. AMBLER, PA.

▲† **Northeast Constr. Co.** and **Aberdeem & Miller Constr. Co.,** Mount Ranier, Md. LB $1,454,787 (6 bidders) repairs, imprvts., Chesapeake Gardens HOUSING Proj. ORD-18-110-60-196, ABERDEEN PROVING GROUND, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. CD 9/5/58.

▲† **Standard Constr. Co.,** 100 Connecticut Ave., N. W., Wash., D. C., CA $4,146,800 DOMICILIARY C, U. S. Soldier Home, WASH., D. C., U. S. Eng., First and Douglas Sts., Wash., D. C. Bids June 21. CD 6/23 under LB.

▲ **Arthur Venneri Co.,** 1906 K St., N. W., Wash., D. C., CA $1,646,500 CARTOGRAPHIC ENGINEERING, repairs to walls of Erskine Bldg. Army Map Service, WASH., D. C., U. S. Eng., First and Douglas Sts., N. W., Wash., D. C. Bids June 14. CD 6/16 under LB.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

SOUTH

HEAVY CONSTRUCTION—BA

† **Georgia and South Carolina**—BA 7/21—U. S. Eng. 200 E. St. Julian St., P. O. Box 889, Savannah, Ga., modifying C and NW Ry. bridge over Twenty-Six Mile Creek, Hartwell Proj., Savannah River, Civeng. 09-133-60-45. CD 5/12

† **Tenn., Memphis**—FACILITIES, STAGE X—BA 8/11—U. S. Eng., P. O. Box 97, Memphis, Zone 1, Stage X, excav. for structures, grading, gravel fill, etc., c. conc., steel reinforcement, main shop superstructure, etc., welding shed superstruct buoy repair shed superstructure, administration bldg. etc., timber guard rail, 10 ton crane (main shop) etc. Ensley Engineer Yards. Civeng-40-041-60-92. $100,000-$600,000. Plans deposit $16.

BUILDINGS—BA

La., Baton Rouge—SCHOOL—BA 7/12—East Baton Rouge Parish School Bd., 805 St. Louis St., 1 story, 32,000 sq. ft. steel frame, brick Baker Heights elementary school, Baker. Plans deposit $40. Wilson & Coleman, 1038 Main St., Baton Rouge, La., archts.

▲ **Tenn., Kingsport**—STORE—BA About 7/20—Miller's Department Store, 433 S. Gay St., Knoxville, (selected list of bidders), department store, $1,000,000. Painter, Weeks & McCarty, 618 Church Ave. S.W., Knoxville, archts. Appalachian Consulting Engineers, Kingsport, consult. engrs. CD 11/16.

La., Hammond—CLASSROOMS, ETC.—BA 7/21—State Bd. Educ., Capitol Bldg., Baton Rouge, 2 story, 33,000 sq. ft. brick, rein.-con. frame classroom; 1 story, 9,420 sq. ft. steel frame, brick Agriculture Bldg., Southeastern State College. Plans deposit $50. John M. Lachlin, Jr., 3505 Toulouse St., New Orleans, La., archt. CD 6/3.

▲† **Ky., Fort Knox**—HOUSING—BA About 8/11—U. S. Eng., P.O. Box 59, Louisville, Zone 1, 350 units in 175 or 196 bldgs., Capehart Housing. $5,500,000. Plans deposit $10. CD 10/27/59.

HEAVY CONSTRUCTION—LB & CA

▲† **Sam Nally,** Bardstown, Ky., CA $1,147,260 bit. surf. treatment and related work various roads, Mammoth Cave National Park, Proj. 182, 5A1, 7A1, 9A1, 10A1, 18A1, KENTUCKY. Bureau P. Rds., Dpt. Commerce, Park Headquarters, Mammoth Cave National Park, Mammoth Cave, Ky. Bids June 21 CD 6/23 under LB.

BUILDINGS—LB & CA

Paul Smith Constr. Co., 310 N. Rome Ave., Tampa, Fla. CA $919,793, est. $850,000, LIFE SCIENCE, LABORATORY, CLASSROOMS, TAMPA, FLA. University of South Florida, P. O. Box 9277, Sulphur Springs Station, Tampa, Fla. Bids June 8. Awarded June 21. CD 6/15, under LB.

▲ **V. L. Nicholson,** 611 S. Central Ave., Knoxville, Tenn., CA $2,390,000, (5 bidders), 1,000 man DORMITORY, University of Tennessee, KNOXVILLE, TENN. State Dpt. Educ., State Office Bldg., Knoxville, Tenn. Baumann & Baumann Inc., 813½ Market St., Knoxville, Tenn., archts. Bids June 21. CD 6/6.

Cravens & Cravens, 616 Lagonda Ave., Lexington, Ky., LB $646,319 alterations, addns., COURT HOUSE, LEXINGTON, KY. Fayette County Fiscal Court, Lexington, Ky. Albert H. Harmon, 1036 New Circle Rd. N. E., Lexington, Ky., archt. Proctor Ingels, 915 S. Limestone, Lexington, Ky., engr. Bids June 22 CD 6/1.

▲† **W. F. Holt & Sons, Inc.,** 1119 Laurel St., Nashville, Tenn. and **Johnson, Drake & Piper, Inc.** 2244 W. Holcombe Blvd., Houston, Tex., CA $9,322,000 GENERAL MEDICAL and SURGICAL HOSPITAL and REGIONAL OFFICE CLINIC, NASHVILLE, TENN., Veterans Admin. Constr. Service, Munitions Bldg., Wash. 25, D. C., Bids June 14. CD 6/16 under LB.

D. S. McClanahan & Son, Contractors, Box 747, Columbus, Miss., LB $188,000, SHOE FACTORY, ACKERMAN, MISS. Bd. Suprvs., Choctaw Co., Court House, Ackerman, Miss. Endicott Johnson Corp. lessee. Bids June 2.

John Hemmer Constr. Co., Inc., 1020 Prospect St., Covington, Ky., LB $448,900, (4 bidders), JUNIOR HIGH SCHOOL, Taylor Mill Park, COVINGTON, KY. Kenton County Bd. Educ., Covington, Ky. Bids June 15. CD 5/20.

Lewis Lumber Co., Crowley, La., CA $412,874, 50 DWELLING UNITS, CROWLEY, LA. Crowley Housing Auth., Crowley, La. Bids May 3. Awarded June 20. CD 5/11, under LB.

Quality Constr. Co., Box 186, Metairie, La., LB $188,880, 1 story, steel, concrete WAREHOUSE and GATE HOUSE alterations, GRETNA, LA. Wesson Oil & Snowdrift Co., Inc., Gretna, La. Bids June 1.

▲ **English Constr. Co., Altavista, Va.,** LB $1,074,700, low rent HOUSING Project VA-10-3, DANVILLE, VA. Danville Redevelopment & Housing Auth., 651 Cathedral Place, Danville, Va. Bids June 21. CD 5/27.

Architects and Engineers: Reynolds, Smith and Hills, Jacksonville, Florida

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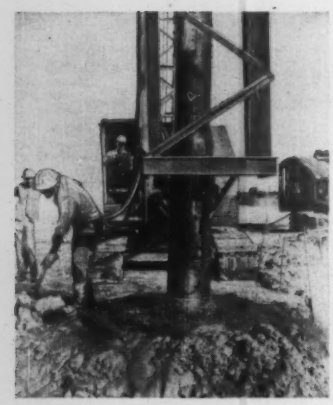

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MIDDLE WEST

HEAVY CONSTRUCTION—BA

† **Indiana**—BA 7/18—Prairie Creek Conservancy Dist., Daviess Co. Court House, Washington, 1,020,943 cu. yds. common excavation, 3048.0 lin. ft. 8-48 in. diameter corrugated metal pipe, Prairie Creek, Daviess Co. CD 7/9/59.

Wis., Milwaukee—BA 7/19—City, City Hall, plumbing for Howard Ave. purification plant, $75,000; heating, ventilating and air-conditioning, $225,000; electrical work, $325,000. Plans deposit $25 each. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs., E. A. Schmidt, c/o owner, city engr. CD 5/12/58.

† **Mich., Selfridge Air Force Base**—BA 7/21—U. S. Eng., 1101 Washington Blvd., Detroit 26, 1,200 lin. ft. spur, track, ballast, sub-ballast, turnout, bumper, road crossing, drainage, coal hopper etc. ENG-20-064-60-54. Under $50,000. Plans deposit $1. CD 9/25/59.

BUILDINGS—BA

Mich., Detroit—POLICE PRECINCT STATION—BA 7/12—M. F. Wagnitz, city engr., 528 City-County Bldg., Detroit 26, police precinct station, Jefferson at St. Jean, Contr. PD-19. Plans deposit $25.

O., Kent—HEATING PLANT—BA 7/13—Dpt. P. Wks. State Depts. Bldgs., Columbus Zone 15, heating plant addn., Kent State University, $250,000. Plans deposit $25. Fulton, Dela Motte, Larson & Nassau, 6014 Euclid Ave. Cleveland Zone 3, archts. CD 11/25.

▲ **Ill., Belleville**—SCHOOL—BA 7/21—Belleville Elementary School Dist., 118, Bd. Educ., 700 Lucinda St., West Junior High School, Royal Heights Rd., between North Belt West and Rte. 161, $1,000,000; Abraham Lincoln grade school, Royal Heights Rd., between North Belt, $500,000. Pearce & Pearce, Inc., 721 Olive St., St. Louis 1, Mo., archts. CD 3/29.

▲ **Wis., Milwaukee**—MUSEUM—BA 8/3—City, City Hall, museum, $7,540,000. Plans deposit $150. Eschweiler & Eschweiler, 720 E. Mason St., archts., E. A. Schmidt, c/o owner, city engr. CD 11/14/56.

HEAVY CONSTRUCTION—LB & CA

▲ **George D. Hardin Inc.**, 2130 S. Michigan Ave., Chicago, Ill. and **Robert Gordon, Inc.**, 21 N. Jefferson St., Chicago, Ill., LB **$1,548,248**, No. 80.391-60-2, WW surf wash piping, Central Dist. Filtration plant CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids June 21. CD 5/20.

▲ **Garden City Engineering Co.**, 1714 S. Halsted St., Chicago, Ill., CA **$1,405,310**, Div. YYd, Sanitary sewerage, electrical work for West Southwest Treatment Plant, West Air Oxydization unit, Stickney, CHICAGO, ILL. Metropolitan Sanitary Dist. of Chicago, 100 E. Erie St., Chicago, Ill. Bids June 16. Awarded June 23. CD 6/20 under LB.

▲ **Kamen Electric Utility Corp.**, Irving Park and Wolf Rds., Franklin Park, Ill., LB **$2,239,338**, est. $3,000,000 (5 bidders) No. 80.85-60-121, underground electric installation, manholes, ducts, O'hare Airport Park Ridge, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Naess & Murphy, 224 S. Michigan Ave., Chicago 4, Ill., engrs. Bids June 21. CD 12/3/57.

▲ **Consolidated Constr. Co.**, 221 N. LaSalle St., Chicago 1, Ill., CA **$1,932,200**, combined sewers, Wellington Ave. System, CHICAGO, ILL. Dpt. Purchases City Hall, Chicago 2, Ill. Bids May 25. Awarded June 17. CD 5/27, under LB.

G. E. Tillman Co., Inc., 702 N. Locust St., Centralia, Ill., CA **$827,000**, Div. A and B, sanitary sewers, treatment plant, screening plant, KANKAKEE, ILL. City, City Hall, Kankakee, Ill. Bids May 23. Awarded June 15. CD 6/14, under LB.

▲† **Great Lakes Dredge & Dock Co.**, Williamson Bldg., Cleveland, O., LB **$2,923,870**, dredging Lower Livingstone Channel, CIVENG-20-064-60-80, MICHIGAN and ONTARIO. U. S. Eng., 1101 Washington Blvd., Detroit 26, Mich. Bids June 23. CD 5/20.

▲ **MICHIGAN and ONTARIO**—International Bridge Auth., 801 Seymour St., Saulte Marie, Mich., bids opened 6/22, Mich.—Ont.—**Dominion Steel & Coal Corp., Canadian Bridge Works Div.**, 1210 Walker Rd., Windsor, Ont., LB **$2,084,330**, Contr. 4, structural steel, superstructure, Canadian River spans, Sault Ste. Marie International Bridge between Saulte St. Marie, Mich. and Saulte Ste. Marie, Ont.

BUILDINGS—LB & CA

▲ **Albert M. Higley Co.**, 2036 E. 22nd St., Cleveland 15, O., CA **$1,145,000**, LIBRARY, UNIVERSITY HEIGHTS, O. John Carroll University, University Heights, O. Bids June 2. CD 6/10, under LB.

Wickes Boiler Co., 515 N. Washington St., Saginaw, Mich., LB **$642,989**, (3 bidders), Contr. No. 1, STEAM GENERATING UNIT, FRANKFORT, IND. City, City Hall, Frankfort, Ind. Bids June 8. CD 5/17.

▲ **A. J. Etkin Constr. Co.**, 10111 Capitol, Oak Park, Mich., CA Est. over **$13,000,000**, two 21 story APARTMENTS, SHOPPING CENTER, Underground Garage, Surface Parking Lot, Gratiot Redevelopment Area, DETROIT, MICH. S. L. Katzin & Assocs., 6522 S. Cottage Grove, Chicago, Ill. Awarded June 24. CD 6/28.

▲ **Robin Constr. Co.**, 1333 N. Wells St., Chicago, Ill., CA Est. **$25,000,000**, 1,055 unit Riverside Park HOUSING, swimming, wading pools, Touhy Ave., Sacramento Ave., Pratt Blvd., CHICAGO, ILL. Albert Robin and Julius Epstein, c/o Solomon & Cordwell, archts., 61 W. Superior St., Chicago, Ill.

▲ **S. N. Robbins Co.**, 4341 W. Peterson Ave., Chicago, Ill., CA $1,000,000, 2 story, brick MOTEL, swimming pool, 5200 N. River Rd., Rosemont, CHICAGO, ILL. Jerome Schulman, 2529 N. Pulaski Rd., Chicago, Ill. Robert Babbin, 3744 W. North Ave., Chicago, Ill., archt. Awarded June 17.

▲ **Gust K. Newburg Constr. Co.**, 2040 N. Ashland St., Chicago, Ill., CA $7,000,000, two OFFICES; CA $2,000,000, TRAINING CENTER, Elk Grove Twp., MT. PROSPECT, ILL. United Airlines, 5959 S. Cicero Ave., Chicago, Ill. Bids June 9. CD 6/3.

Penker Constr. Co., 1030 Summer St., Cincinnati, O., CA Est. $800,000 (6 bidders) Unit 5, Beckjord POWER STATION, NEW RICHMOND, O. Cincinnati Gas & Electric Co., 4th and Main Sts., Cincinnati 1, O. Bids May 31. CD 5/20

▲ **E. W. Sproul Constr. Co.**, 173 W. Madison St., Chicago 2, Ill., LB $2,211,796, HIGH SCHOOL, Goebbert Rd., ARLINGTON HEIGHTS, ILL. Arlington Heights High School Dist. 214, 502 W. Euclid Ave., Arlington Heights, Ill. Bids June 16. CD 6/1.

Lee Constr. Co., 6334 N. California St., Chicago, Ill., CA $418,000, 2 story, L-shaped, ELEMENTARY SCHOOL, MT. PROSPECT, ILL. School Dist. 57, 16 S. Emerson St., Mt. Prospect, Ill. William E. McCaughey, 3 S. Prospect St., Park Ridge, Ill., archt. Awarded June 7.

Crane Constr. Co., 201 E. Walton St., Chicago, Ill., CA $200,000, 1 story, steel FACTORY addn., 5959 W. Howard St., NILES, ILL. Williams Mfg. Co., 4242 W. Fillmore St., Chicago, Ill. Robert Babbin & Assocs., 3744 W. North Ave., Chicago, Ill., archts. Awarded June 24.

Abbott Constr. Co., 5879 N. Lincoln Ave., Chicago, Ill., LB $858,700 (9 bidders) Niles Twp. HIGH SCHOOL, East Div. addn., SKOKIE, ILL. Niles Twp. High School Dist., Oakton and Eden Hy., Skokie, Ill. Bids June 6. CD 6/26/59.

Miller Davis Co., 4300 W. North Ave., Melrose Park, Ill., CA $250,000, 1 story, 32,630 sq. ft. structural steel WAREHOUSE, office, 7701 Gross Point Rd., SKOKIE, ILL. Winston Trust c/o A. Epstein & Sons, archts., 2011 Pershing Rd., Chicago, Ill. Awarded June 24.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **South Dakota**—BA On or about 7/28—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., power structures, 1,290 ft post-tensioned girder intake bridge, 10 piers variable height, Oahe Reservoir Project near Pierre. Missouri River Basin. CIVENG 25-066-60-127. $1,000,000. CD 9/29/59.

▲† **Arkansas**—BA 8/11—U. S. Eng., P. O. Box 867, Little Rock, design, mfg., test and deliver four 51,800-hp Kaplan type turbines, Dardanelle Lock & Dam, CIVENG 03-050-60-78. $6,000,000.

▲† **N. M., Albuquerque**—AIR TRAFFIC CONTROL CENTER BLDG.—BA 8/19—Federal Aviation Agency, Procurement Branch, 5651 West Manchester Ave., Los Angeles 45, Calif., air traffic control center bldg., Los Angeles St. and Louisiana Blvd., Proposal No. 4-60-1103. $1,700,000. CD 2/10.

BUILDINGS—BA

▲ **Ark., Osceola** — DWELLINGS — BA 7/12 — Housing Auth., City Hall, 150 units dwellings, Projects ARK 21-1, Sites A and B, $1,300,000. Plans deposit $50. Extended date. Stanley Brown, 414 Pulaski St., Little Rock, archt. CD 6/24.

▲ **S. D., Rapid City**—CATHEDRAL—BA 7/20—Ewing & Forette, archts., 207 Security Bldg., and Stickle & Assocs., archts., 2422 Prospect St., Cleveland, O., 1 story, bsmnt., 68 x 235 ft. wing 26 x 106 ft. with bell tower 85 x 102 ft. wing, steel, stone, reinf. conc., granite cathedral and rectory, $1,400,000, for Roman Catholic Diocese of Rapid City, 1622 W. Blvd. Ray L. Roby, 304 Western Bldg., Mitchell, engr. CD 2/6.

▲ **Minn., St. Paul** — SURGERY, etc. — BA 7/26 — St. Luke's Hospital, 287 Smith Ave., surgery, x-ray and laboratory department addns. $2,000,000. Ellerbe & Co., 333 Sibley St., St. Paul, Minn., archts.-engrs. CD 12/17/58.

▲† **N. M., Albuquerque**—BUILDING—BA 8/16—Atomic Energy Comn., Albuquerque Operations Office, P.O. Box 5400, 3 story, approx. 60,000 sq. ft., rein.-con. Bldg. No. 861 in Technical Area I, Sandia Laboratory. $1,250,000-$1,330,000. CD 7/29.

HEAVY CONSTRUCTION—LB & CA

▲† **Samuel N. Zarpas, Inc.**, and **Fullerton Constr. Co.**, Box 4457, Campbell's Run Rd., Pittsburgh 5, Pa., LB $1,600,000, est. $1,100,000, (3 bidders), air route traffic control center, Type 2, Inv. 3-60-37, FARMINGTON, MINN. Federal Aviation Agency, Region 3, Procurement Branch, Rm. 110, 4825 Troost, Kansas City 10, Mo. Bids June 21. CD 5/9.

▲ **Northern States Power Co.**, 15 S. Fifth St., Minneapolis, Minn., Owner's Forces $4,000,000 expansion natural gas service, St. Paul and area; $3,730,000 install 60 mi. 2 to 16 in. gas mains reconstr. natural gas distrib. sys., St. Paul $295,000 providing natural gas through connection with feeder line, Moorhead, MINNESOTA. Grand Total $8,025,000. CD 1/12/60.

▲† **A. Borchman Sons**, 4501 Douglas St., Omaha 3, Neb., LB $1,351,471, est. $1,070,528, (2 bidders), airmen's dormitories and dining hall, Offutt Air Force Base, ENG-25-066-60-155, FORT CROOK, NEB., U. S. Eng., 1709 Jackson St., Omaha, Neb., Bids June 17. CD 5/26.

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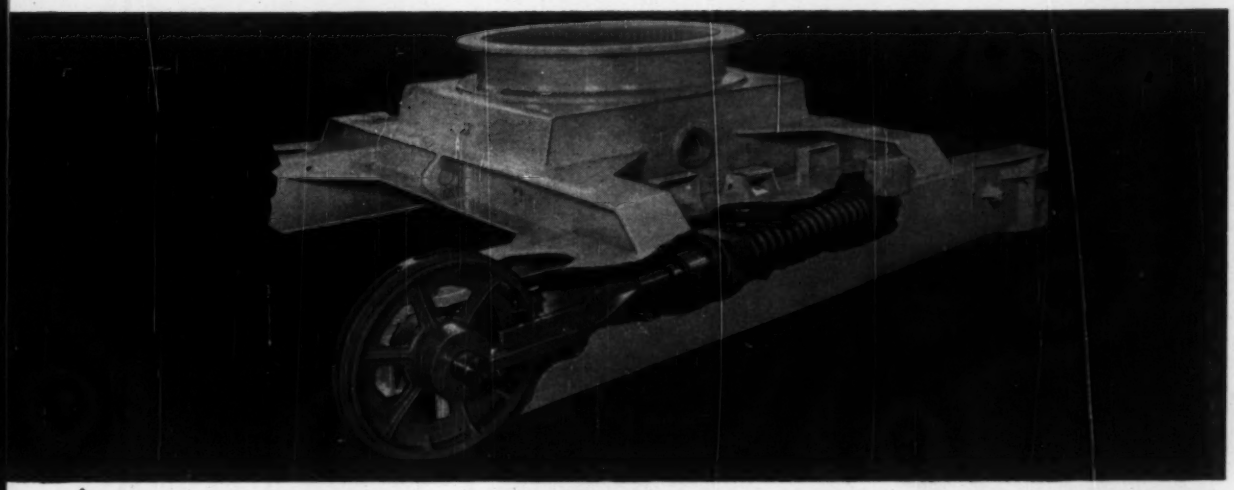

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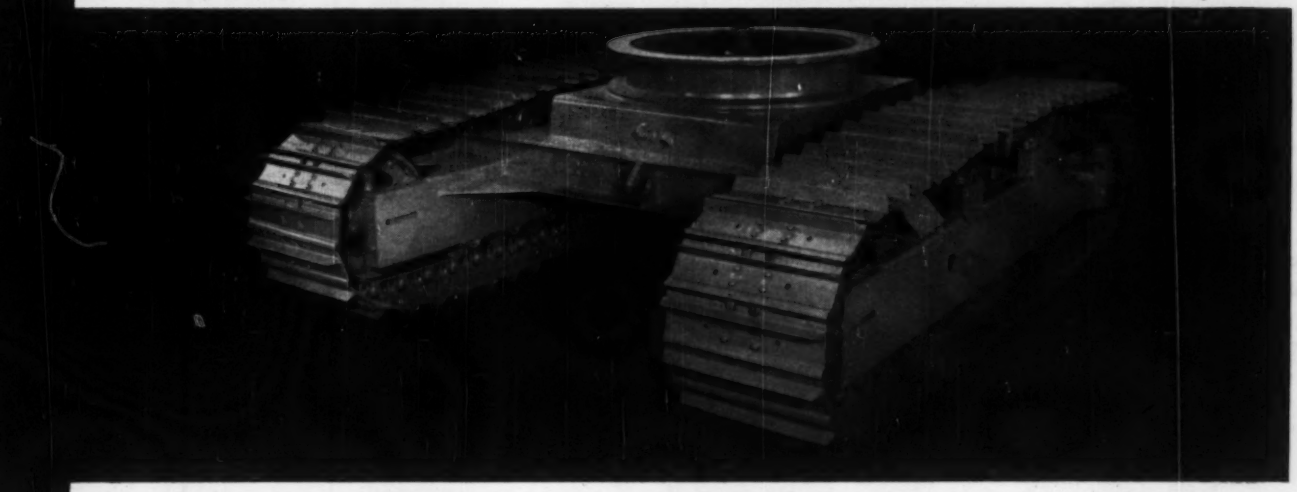

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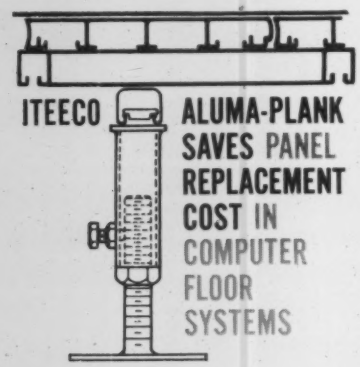

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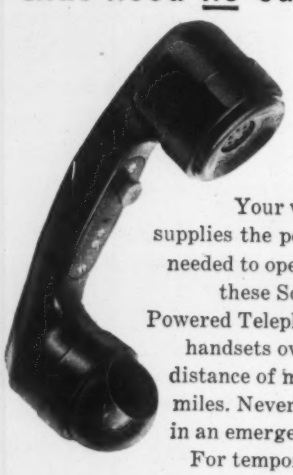

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▲† **Vinson Constr. Co.,** 1920 W. Grant St., Phoenix, Ariz., CA **$3,826,245,** Washita Basin Proj., Parts A and D, earthwork, concrete, steel pipe, structures for Foss Aqueduct, Clinton, Bessie and Cordell laterals, OKLAHOMA. Bureau Reclamation, Dpt. Interior, C between 18th and 19th Sts. NW, Wash., D. C. Bids June 1. Awarded June 23. CD 6/7, under LB.

▲† **American Machine & Foundry Co.,** 261 Madison Ave., New York, 16, N. Y., CA **$81,576,000,** 36 Titan Launcher Sys., Ellsworth Air Force Base, Rapid City, S. D., Mountain Home Air Force Base, Idaho. CD 11/4/49. Larson Air Force Base, Moses Lake, Wash. and Beale Air Force Base, Marysville, Calif. CD 9/22/59. SOUTH DAKOTA, IDAHO, WASHINGTON and CALIFORNIA. Air Materiel Command, Ballistic Missile Center, 5740 Arbor Vitae St., Los Angeles, Calif.

▲† **Chaney & Hope,** 6414 Maple St., Dallas, Tex., LB **$1,034,752,** est. $1,170,435, (5 bidders), hangar Arkansas National Guard, Little Rock Air Force Base, Pulaski Co., ENG-03-050-60-58, LITTLE ROCK, ARK., U. S. Eng., Gay Bldg., Little Rock, Ark., Bids June 23. CD 6/1.

BUILDINGS—LB & CA

▲† **Swartout Co.,** 2327 So. Bristol St., Santa Ana, Calif., CA **$8,098,777,** est. $8,265,600, 296 bldgs. 504 units ARMED SERVICES HOUSING, Whiteman Air Force Base. Inv. No. 23-606-60-35, KNOB NOSTER, MO. Base Procurement Office, Whiteman Air Force Base, Knob Knoster, Mo. Bids May 27. Awarded June 14. CD 6/2, under LB.

▲ **C. Rallo Contg. Co., Inc.,** 5000 Kemper Ave., St. Louis 39, Mo., LB **$6,517,853,** (5 bidders), general contract 12 story HOSPITAL, CENTRAL TOWER, 11 story NURSES HOME and SCHOOL; CONVENT, CHAPEL, GYMNASIUM, POWER PLANT and LAUNDRY, Ballas and Conway Rds., ST. LOUIS COUNTY, MO. Sisters of Mercy, St. John's Hospital, 307 S. Euclid Ave., St. Louis 10, Mo. Bids June 20. CD 6/8.
Phil L. Miller Plbg. & Htg. Co., 661 St. Ferdinand St., Florissant, Mo., LB **$1,237,629,** (5 bidders), plumbing, Hospital, etc., (St. Louis County, Mo.).
Natkin & Co., 5555 Manchester Ave., St. Louis 10, Mo., LB **$2,725,545,** (6 bidders), heating and air-conditioning, Hospital, etc., (St. Louis County, Mo.)
Gamp Electric Co., 2924 Locust St., St. Louis 3, Mo., LB **$1,422,676,** (6 bidders), electrical work, Hospital, etc., (St. Louis County, Mo.).

▲ **Massman Constr. Co.,** 3917 Broadway, Kansas City, Mo., CA **$1,592,438** est. $1,750,000 JUNIOR HIGH SCHOOL, Nallwood JUNIOR HIGH SCHOOL, 97th and Woodson Sts. Leawood, MERRIAM, KAN. Bd. Educ. Shawnee-Mission Dist. High Schools, 7401 Johnson Dr., Merriam, Kan. Bids June 9. Awarded June 21. CD 6/22, under LB. Awarded June 21.

▲ **Sletten Constr. Co.,** 1301 10 Ave. N., Great Falls, Mont., LB **$1,725,000,** 200 units low-rent HOUSING, GREAT FALLS, MONT., Great Falls Housing Auth., 1500 6 Ave. S., Great Falls, Mont., Bids June 21. CD 6/10.

▲ **Tulsa Rig, Reel & Mfg. Co.,** P. O. Box 490, Tulsa, Okla., CA **$1,347,000,** PUBLIC HEALTH HOSPITAL alters., FAYETTEVILLE, ARK., Washington Co. Hospital Comm., Fayetteville, Ark. Bids June 21. CD 6/7.

▲ **Platt Rogers Constr. Co.,** 9655 West Colfax, Denver, Colo., CA **$3,000,000,** 2 story, 100,000 sq. ft., 600 car parking, OFFICE, DENVER, COLO. Cambridge Center Management Co., c/o O'Neil Ford & Carl F. Groos, Jr., archts., 1301 Pennsylvania St., Denver, Colo. Martin Co., lessee.

▲ **Platt Rogers Constr. Co.,** 9655 West Colfax, Denver, Colo., CA **$2,000,000,** 100 unit 2 and 3 story, MOTOR HOTEL, Colorado Blvd. and Cherry Creek Dr., GLENDALE, COLO. Cherry Creek Inn, Inc., 1737 S. Spruce, Casper, Wyo. CD 7/14.

FAR WEST

HEAVY CONSTRUCTION—BA

Hawaii, Honolulu—BA 7/19—Bd. Water Supply, 630 S. Beretania St., Job 231W, Waialae-Ike-Wailupe Booster Pumping Station. Plans deposit $50. CD 6/1.

Calif., San Diego—BA 7/19—City, Civic Center, Zone 1, San Ysidro, pipe line, San Ysidro. Plans deposit $10.

† **Oregon**—BA 7/19—U. S. Forest Service, 729 N.E. Oregon St., Portland,
Lane Co.—72 ft. Coffeepot Creek bridge, Williamette National Forest. CD 11/20, under LB.

† **Washington**—PARK BRIDGE—BA 7/19—U. S. Forest Service, 729 N.E. Oregon St., Portland, Ore., 200 ft. rein.-conc. bridge, Cliff Dell on Naches River Rd. No. 175, Yakima and Kittitas Counties, Bid No. R 6-61-8. CD 9/21/59.

Calif., San Diego—PARKING LOT—BA 7/20—City, Civic Center, Zone 1, parking lot, Ventura Pl. Plans deposit $10.

† **Washington**—BA 7/21—U. S. Eng., City-County Airport, Walla Walla, rein.-conc. pumping plant 15-E addn. on Kennewick levees, with 12,000 gpm pump and space for another, Kennewick, CIVENG-45-164-60-54. $75,000. Plans deposit $1.10. Extended date. CD 6/6.

▲ **Calif., Los Angeles**—BA 7/22—Los Angeles County Flood Control Dist., 2250 Alcazar St., Proj. 130, Unit 2, lines A, B, C, D and storm drain pump Dist. No. 7; Proj. 457, Unit 1, Long Beach. $2,000,000. CD 8/13/56.

† **Ariz., Fort Huachuca**—BA 7/25—Contracting Officer, U. S. Army Electronic Proving Ground Procurement Office, U. S. Army Signal Supply Agency, drainage channel extension, Smith Ave. from Rucker St. to H St., IFB SC-36-039-61-261B. CD 9/5/58, under Public Buildings.

† **Washington**—BA 7/26—National Park Service, Superintendent, Olympic National Park, 600 E. Park Ave., Port Angeles, 2 approx. 360 sq. ft. comfort stations, sewer systems, water sys. extension, Kalaloch Campground, Olympic National Park, Proj. No. OLY-W 288.

Calif., Los Angeles—BA 7/29—Los Angeles County Flood Control Dist., 2250 Alcazar St., Proj. 83, Manchester Ave. and Sepulveda Blvd. storm drain. $606,200. CD 11/10/58.

† **Oregon**—BA 8/4—Bureau Reclamation, Dpt. Interior, Prineville, earthwork, structures for distribution canal, Station 5 plus 7.123 to Station 900 plus 10 near Prineville, Crook Co., Crooked River Proj., Spec. DC 5359.

BUILDINGS—BA

Utah, Junction—HIGH SCHOOL—BA 7/20—Piute Co. School Dist., Court House, high school. $450,000. Plans deposit $50. Edwards & Daniels, 1407 S. 22nd E., Salt Lake City, Utah, archts. CD 2/17.

▲† **Calif., Fort Ord**—HOUSING—BA 7/21—U. S. Eng., 180 New Montgomery St., San Francisco, 500 units Capehart Housing. ENG-04-203-60-68B. Extended Date. $8,000,000. Plans deposit $10. CD 6/15.

Calif., Norwalk—SHOP, etc.—BA 7/21—Cerritos College Dist., 11162 E. Alondra Blvd., shop and site work, Increment No. 2. $400,000. Kistner, Wright & Wright, 1125 W. 6th St., Los Angeles, Calif., archts. CD 10/5/59.

Wash., Liberty Lake—SCHOOL—BA 7/22—Liberty School Dist., 362, 39,000 sq. ft., rein.-con. and frame high school, $650,000. Plans deposit $50. Extended date. McClure & Adkison, Sherwood Bldg., Spokane, archts. CD 5/10.

HEAVY CONSTRUCTION—LB & CA

ALASKA—State Dpt. P. Wks., Div. Hys., Juneau, **Alcan Pacific Co.**, 1445 E. 8th Ave., Anchorage, Alaska, CA $658,807, grading, draining 13.8 mi. Nome-Teller Hy., constr. timber bridge on steel pilings over Cripple River. Proj. S 0131(2). Bids June 7. CD 6/15 under LB.

† **Cheney Constr. Co.**, Central Bldg., Seattle, Wash., LB $655,908, est. $557,134 (3 bidders) b. conc. paving, draining and approach lighting, Inv. 60-12, ELMENDORF AIR FORCE BASE, ALASKA. U.S. Eng., P.O. Box 7002, Anchorage, Alaska. Bids June 23. CD 6/9.

▲† **S. S. Mullen, Inc.**, 220 River St., Seattle, Wash., LB $1,248,701, est. $1,022,713, (7 bidders), repair or bldg. aerial tramways, Cape Lisburne, Tin City and Tatalina Aircraft Control and Warning Stations, Inv. 60-64, ALASKA. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids June 22. CD 6/9.

▲† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, LB $1,416,620, est. $1,804,645, (21 bidders), communications facilities, Pedro Dome, Black Rapids, McCullum, Paxsen, Tolson, Sheep Mountain, Harding Lake and Donnelly Dome, Inv. 60-67, ALASKA. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids June 23. CD 6/9.

Wesco-Stoen, 29 Chris Rd., Anchorage, Alaska, LB $89,688, est. $96,002, (4 bidders), 10,318 ft. 8 in. asbestos cement or concrete sewer mains, Sched. C, North Spenard Sanitary Sewer, ANCHORAGE, ALASKA. City, City Hall, Anchorage, Alaska. Bids June 23. CD 6/16.

† **The Inlet Co., Inc.**, 1905 Karluk, Anchorage, Alaska, LB $501,933, est. $800,162, (7 bidders), deactivation heating plant for Alaskan Air Command, Inv. 60-72, ELMENDORF AIR FORCE BASE, ALASKA. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids June 21. CD 6/9.

† **C. E. Nelson Constr. Co.**, Logan, Utah, LB $108,010, (3 bidders), grading and surf. roads and areas at National Reactor Testing Station, Proj. AT(10-1) 1057, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, Idaho Falls, Idaho. Bids June 22. CD 7/29/59, under Public Buildings.

† **Ogden Iron Works Co.**, 185 23 St., Ogden, Utah, LB $125,438, (4 bidders), 24 bulkhead gates, one lot of bulkhead gate seats and guides, lifting frame for turbine draft tubes at Glen Canyon powerplant, Colorado River Storage Project, Flagstaff, Coconino Co., Spec. DS 5341, ARIZONA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids June 21. CD 5/16.

† **Korshoj Constr. Co.**, 1545 Washington St., Blair, Neb., CA $988,287, earthwork, concrete lining, structures for Welton-Mohawk main conveyance channel, Sta. 2377/05-3304/22.59, and Snyder Ranch conveyance channel, Gila Project, near Yuma, Yuma Co., Spec. DC 5305, ARIZONA, Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids May 11. Awarded June 20. CD 5/18 under LB.

† **Kenneth E. Beck**, P.O. Box 518, Moses Lake, Wash., CA $62,927, constr. DW32, DW32A, and W648DE drains and W648DD drain extension for Block 72, Columbia Basin Project, 117C-591, WASHINGTON, Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids May 31. CD 5/24.

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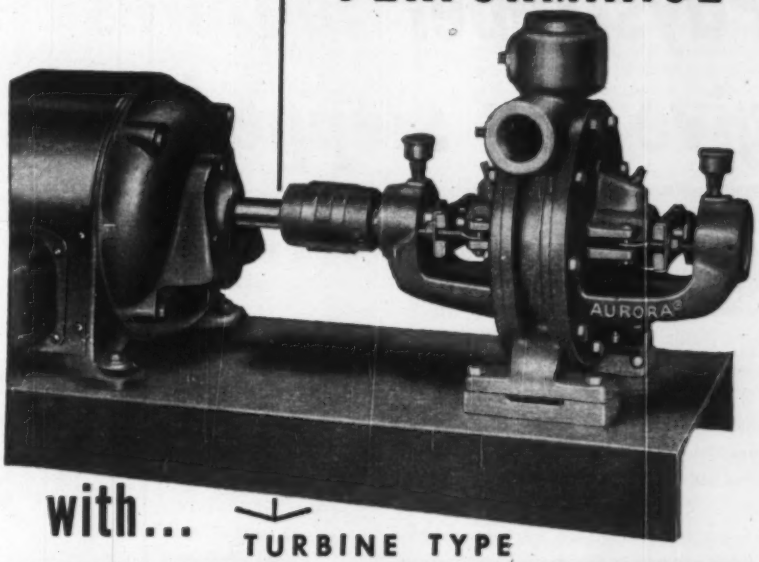

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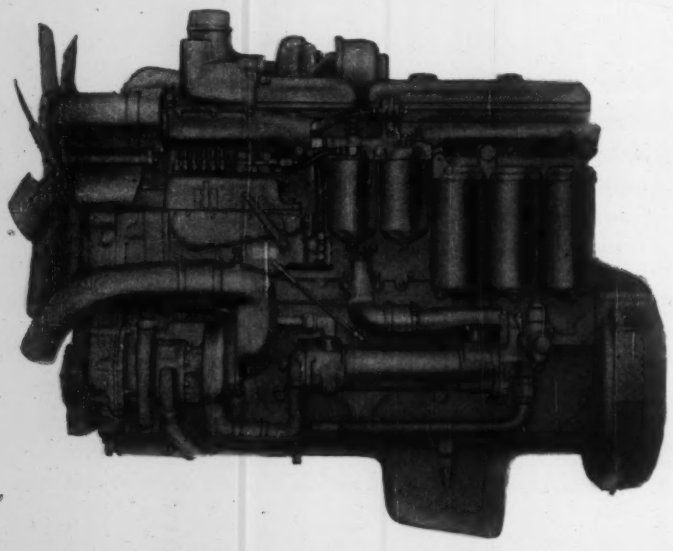

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WASHINGTON—State Dpt. Comm., Dpt. Hys., Olympia, Wash.—**N. A. Degerstrom,** E. 15 32 St., Spokane, Wash., CA **$592,771,** (14 bidders), draining, grading, surf. bit. surf. treatment, rein.-con. slab bridge and signing 9.52 mi. Sec. St. Hy. 7-C, from Jct. with Primary St. Hy. 11 to Delight, FAS No. S-0972(7), Adams Co. Bids June 21. Awarded June 22. CD 6/29 under LB.

Austin Constr. Co., 1300 W. Nickerson St., Seattle, Wash., CA **$68,880,** replacing concrete water main across Green River Bridge near water sys. headworks, TACOMA, WASH. City, City Hall, Tacoma, Wash.

Superior Constr. Co., 4610 37 Ave. S.W., Seattle, Wash., LB **$53,029,** 10,480 ft., 6 and 8 in. c.i. water dist. mains, SEATTLE, WASH. Water Dist. No. 42, 16906 15 Ave. N.E., Seattle 55, Wash. H. T. Harstad & Assocs., 2512 2 Ave., Seattle 1, Wash., engr.

American Pile Driving Co., Inc., Pier 2, Everett, Wash., LB **$92,684,** (5 bidders), replacing piling, stringers and decking for Pier 1, EVERETT, WASH. Port of Everett, Pier 1, Everett, Wash.

Pacific Constr. Co., 121 River St., Seattle, Wash., LB **$126,171,** (7 bidders), grading, surf., draining, b. paving, concrete curbs, gutters and sidewalks on S.W. 153 and other streets, SEATTLE, WASH. King Co., County-City Bldg., Seattle 4, Wash.

† **Charles T. Parker,** Box 7588, Portland, Ore., CA **$545,065,** Schedule III, 345 KV line No. 1, 22.3 mi. Big Eddy-McLaughlin Section Big Eddy-Keeler, Inv. 9128, Hood River, and Clackamas, OREGON, Bonneville Power Admin., 1001 NE Lloyd Blvd., Portland, Ore. Bids June 7. CD 6/16.

† **Angell Bros.,** Builders Exchange Blvd., Portland, Ore., CA **$67,196,** est. $79,220 (7 bidders) bank protection Dixon Creek location, Willamette River, CIVENG-35-026-60-203, Benton Co., OREGON. Bids June 15. Awarded June 22. CD 5/31.

▲† **R. A. Heintz Constr. Co.** and **Rogers Constr. Co., Inc.,** 211 NE Columbia Blvd., Portland, Ore., CA **$1,453,741,** est. $1,403,851 (11 bidders) grading, draining, surf., fencing, for detour US Hy. 30, Watchmans Dip and UPRR shoofly, in conjunction with John Day Dam, CIVENG-45-164-60-49 OREGON, U.S. Eng., City-County Airport, Walla Walla, Wash. Bids June 23. CD 6/9.

† **G. A. Moore & Assocs.,** 923 SW 17th Ave., Portland, Ore., LB **$242,851,** est. $174,646 (3 bidders) 38x97 ft. masonry operations bldg., Baker Air Force Station, Inv. 60-125, BAKER, ORE. U.S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids June 22. CD 6/14.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, bids opened 6/22,

Stolte, Inc., 8451 San Leandro St., Oakland, Calif., LB **$1,106,965,** (6 bidders), 826 ft. bridge over South Fork of Eel River, US Hy. 101, Myers Flat incl. grading 0.8 mi. future Freeway Rte. to south. I-HuM-1-C, Humboldt Co. CD 5/26.

▲ **Atkinson-Ostrander Co.,** (Guy F. Atkinson Co.), South San Francisco, Ostrander Constr Co., Portland, Ore., Arundel Corp., Baltimore, Md.; L. E. Dixon Co., San Gabriel, Calif., Hunkin-Conkey Constr. Co., Cleveland, O., 10 W. Orange Ave., South San Francisco, Calif., CA **$52,636,785,** four earth and rockfill dams, concrete dams, reconstr. dam, 17 mi. tunnel, 11,000 ft. penstocks, 3 hydroelectric plants, 23 mi. power and irrigation canals, access roads, Feather River Proj. Butte, Plumas and Yuba Counties, CALIFORNIA. Oroville-Wyandotte Irrigation Dist., P. O. Box 229, Oroville, Calif. Bids June 2. Low bidder withdrew bid. CD 6/10, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Allen M. Campbell Co., General Contractors, P. O. Box 774, Santa Ana, Calif., CA **$4,934,045,** 6.1 mi. freeway, frontage roads, 6 over crossings, 3 bridges and 1 underpass, Bayshore Freeway between 0.3 mi. NE, Morse Ave. near Sunnyvale and p. 1 mi. SE, Broakaw Rd. near San Jose. IV-SC1-68, B, SUNV, SC1, SJS, Santa Clara Co. Bids June 1. CD 6/3, under LB.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento, bids opened 6/22,

Granite Constr. Co., P.O. Box 900, Watsonville, Calif., LB **$112,660** (4 bidders) steel bridge over Bear Creek and realigning roadway approaches 0.8 mi. FAS County Rd. 1172 (Bear Creek Rd.) between 3.7 mi. and 4.5 mi. NE, Boulder Creek, Santa Cruz Co. CD 5/31.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, bids opened 6/22,

Calif.—**Harms Bros.,** 5261 Stockton Blvd., Sacramento, Calif., LB **$491,684** (1 bidder) wid'n. 3.8 mi. chain control parking areas, 6 locations and truck passing lines, US Hy. 50 between 2 mi. west, Pollock Pines and Twin Bridges, El Dorado Co.,

Calif.—**Watkins** & Sibbald, 6 Bridge St., San Aselmo, Calif., LB **$144,116** (6 bidders) functional planting 16.9 mi. US Hys. 99&50 between San Joaquin County Line south, Galt and Stevenson Ave. south of Sacramento, Sacramento Co.,

Calif.—**A. Teichert & Son, Inc.,** 1931 Stockton Blvd., Sacramento, Calif., LB **$488,334** (6 bidders) reconstr. southbound lanes 6.6 mi. US 99-50 between Calaveras River and Harney Lane, 1.2 mi. south of Lodi, San Joaquin Co. CD 6/27.

† **Utah Dredging Co.,** 100 Bush St., San Francisco, Calif., LB **$273,890,** est. $206,515 (2 bidders) dredging 132,000 cu. yd. Sacramento River, Y St. Bend to Bryte Bend and mouth of American River, Sacramento Co. ENG-04-167-60-56, CALIFORNIA. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids June 23. CD 5/25.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, bids opened 6/23,

Ralph B. Slaughter, P.O. Box 508, Julian, Calif., LB **$262,752** (10 bidders) resurf. sections State Sign Rte. 76 between Rincon and Morettis and State Sign Rte. 79 between 3 mi. south, Santa Ysabel and Riverside Co. line 53.2 mi., San Diego Co. CD 5/31.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, rejected bids June 23, turn lanes, US Hy. 101 alternate (Pacific Coast Hy.), Broad Beach Rd., Zumirez Dr., Latigo Canyon Rd. and South Latigo Shore Dr. west, Santa Monica, Los Angeles Co. Will re-advertise. CD 5/31.

▲ **CALIFORNIA**—State Div. Hys., 120 Spring St., Los Angeles, Bids opened 6/23,

J. E. Haddock, Ltd., 3538 E. Foothill Blvd., Pasadena, Calif., LB **$1,694,007,** (5 bidders), wid'n. San Bernardino Freeway between ½ mi. east, Eastern Ave., Monterey Park and Rosemead Blvd., Rosemead, 5.4 mi.; wid'n., altering 17 bridges, VII-L.A.-26, MonP, LA, Alh, E, Rsmd., Los Angeles Co. CD 5/26.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 6/23,

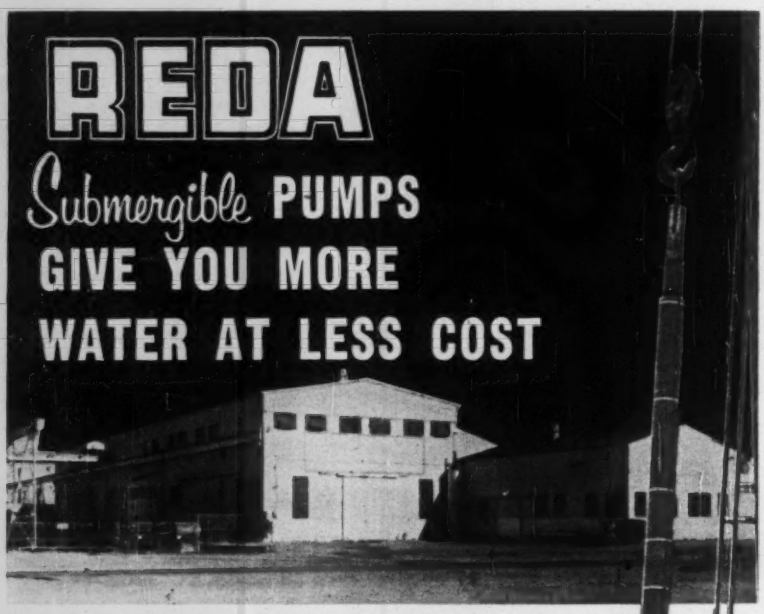
Peter Kiewit Sons Co., 345 Kieways Ave., Arcadia, Calif., LB **$7,676,933,** (6 bidders), about 2.9 mi. 8 lane freeway, San Diego Freeway, 17 major structures between 0.3 mi. south, 308th St. and 0.4 mi. north, 190th St., VII-L.A.-158, 165-C, A, LA., Los Angeles Co. CD 5/18.

† **Hoagland-Findlay Engineers,** 3254 Cherry, Long Beach, Calif., LB **$347,400,** est. $385,000, (3 bidders), subsidence protective measure, Long Beach Naval Shipyard, Spec. 25895, LONG BEACH, CALIF. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego 1, Calif. Bids June 22. CD 5/31.

† **Altermatt-Action,** P.O. Box 66, Novato, Calif., LB **$298,636,** est. $277,400, (7 bidders), fuel storage facilities, Naval Missile Center, Spec. 30241, POINT MUGU, CALIF. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego 1, Calif. Holmes & Narver, 828 S. Figueroa, Los Angeles 17, Calif., engrs. Bids June 23. CD 6/2.

State Div. Hys., 120 S. Spring St., Los Angeles, Calif., rejected bids June 9, equipment WAREHOUSE, grading, paving yard areas, Flower St. and Providentia Ave., Burbank, Los Angeles Co., CALIFORNIA. Will re-advertise. CD 5/12.

Home Savings & Loan Assn., 9245 Wilshire Blvd., Beverly Hills, Calif., Owner Builds, **$941,300,** 51 stucco DWELLINGS, Eatough Ave., Eatough Pl., Nevada Ave., Malden St., Hanna Ave. etc. Tract 20664, CANOGA PARK, CALIF.



A complete line of models from ⅓ to over 500 H.P. provide capacities from 5 to over 1,000 gpm for wells as deep as 10,000 feet. As there are no belts, drive shafts, and no special piping is required, installation is easier and less expensive. Reda Pump Operating costs are low with little or no maintenance. Power costs are approximately 1¢ per KWH per horsepower and even lower.

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Manufacturers of electric submergible motors and pumps for over 40 years.
Pumps for Oil, Brine, Water, LPG, Gasoline, Jet Fuel.

▲ **Macco Corp.**, 3800 E. Coast Hy., Corona Del Mar, Calif., CA $1,371,900, 99 DWELLINGS, 2702 Columbo Ave., COSTA MESA, CALIF. Mesa Del Mar Dev. Co., Suite 1, 3800 E. Coast Hy., Corona Del Mar, Calif.

K. W. Koll, 1555 Placentia, Newport Beach, Calif., CA $814,172, 44 DWELLINGS, 2956 Pemba Dr., Tract 3529, COSTA MESA, CALIF. Biken Dev. Co., 1555 Placentia, Newport Beach, Calif.

Bert E. Moore, 8301 So. Western Ave., Los Angeles, Calif., CA $586,220, 39 RESIDENCES, Rincon Villa Estates No. 1, ESCONDIDO, CALIF. Rincon Villa Estates, 8301 So. Western Ave., Los Angeles, Calif.

† **Wm. A. Drennan**, 1325 Castic, Oildale, Calif., LB $127,300 est. $108,000 (4 bidders) non-destructive test facility, Naval Ordnance Test Station China Lake, Spec. 30300. INYOKERN, CALIF. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego 1, Calif. Bids June 24 CD 6/8.

Verona Builders, Inc., 265 N. Robertsoh Blvd., Beverly Hills, Calif., CA $454,000, 44 DWELLINGS, S. Don Bapiste Ave., S. Donna Antonio Ave., S. Palmas Ave. etc. LA PUENTE, CALIF. Bradshaw Estates Inc., 265 N. Robertson Blvd., Beverly Hills, Calif.

Chotiner & Gumbiner, 5316 Venice Blvd., Los Angeles 19, Calif., CA $500,000 alterations BANK-OFFICE, 742-760 S. Hill and 317-321 W. 8th St., LOS ANGELES, CALIF. Union Bank, 325 W. 8th St., Los Angeles, Calif. Samuel E. Lundeen & Assocs., 548 S. Spring St., Los Angeles, Calif., archt. Brandow & Johnston, 2430 W. 3rd St., Los Angeles, Calif., engrs. CD 3/7.

L. D. Reeder Co., 660 Minnesota St., San Francisco, Calif., CA $586,328 furnishing, installing MOVABLE PARTITIONS for 9 story State Office Bldg. SW corner 1st and Broadway, Los Angeles Civic Center, W.O.-3848GC-3 LOS ANGELES, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids June 8 Awarded June 22 CD 6/23 under LB.

Higgins & Brewer, 8 Hidden Valley Dr., Monrovia, Calif., CA $400,000, 2 story, frame, stucco HOME FOR THE AGED, MONROVIA, CALIF. St. Luke's Manor Corp., 168 Highland Pl., Monrovia, Calif.

Shamrock Builders, 6655 Whittier Blvd., Los Angeles, Calif., CA $411,441, 59,977 sq. ft. STORES, Beverly Blvd., MONTEBELLO, CALIF. Neil Properties, Inc., 6655 Whittier Blvd., Los Angeles, Calif.

▲ **Haas and Haynie**, 244 Pine St., San Francisco, Calif., CA est. $5,000,000, 120,000 sq. ft. tactical weapons LABORATORY and RESEARCH CENTER, NEWPORT BEACH, CALIF. Aeroneutronics Sys., Inc., div. Ford Motor Co., 3000 Schaefer St., Dearborn, Mich. CD 10/15/57.

Earl T. Casler & Strona Bros., 1094 E. 9th St., Upland, Calif., LB $714,900 (6 bidders) HOSPITAL addns., ONTARIO, CALIF. Ontario Community Hospital, 555 N. Campus Ave., Ontario, Calif. Nielson & Moffatt, 4336 Leimert Blvd., Los Angeles, Calif. Bids June 22.

▲ **Triangle Subdivisions**, 13434 Ventura Blvd., Van Nuys, Calif., Owner Builds, $1,250,000 50 unit 108 x 250 ft stucco APARTMENT, 4419 Fulton Ave., VAN NUYS, CALIF.

Crestlane Bldg. Inc., 13045 Ventura Blvd., Van Nuys, Calif., Owner Builds, $800,000, 3 story, APARTMENT-STORE, 12428-32 Riverside Dr., Tract 25045, VAN NUYS, CALIF.

Nelson Investments, 13758 Victory Blvd., Van Nuys, Calif., CA $480,000, three-3 story APARTMENTS, 8912, 8924, 8936 Van Nuys Blvd., Tract 16711, VAN NUYS, CALIF. Ca-Bar-El Management, Inc., 13758 Victory Blvd., Van Nuys, Calif.

▲† **Morrison-Knudsen & Mercer Frazer Co.**, 2nd and Commercial Sts., Eureka, Calif., CA $1,568,563, repairs to jetties, concrete cap and parapet walls, etc., Humboldt Bay, Humboldt Co., CIVENG-04-203-60-23, CALIFORNIA. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids June 8. CD 6/14, under LB.

† **Samuel Zarpas**, P.O. Box 4457, Pittsburgh, Pa., and **Fullerton Constr. Co.**, 19152 Filer Ave., Detroit, Mich., LB $141,000, est. $156,306 (5 bidders), ground-air transmitter, receiver facility, antenna farm, Beale Air Force Base near Marysville, Spec. 2582A, ENG-04-167-60-42, BEALE AIR FORCE BASE, CALIF. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids June 24. CD 5/25.

† **Solano Electric Co., Inc.**, P.O. Box 11, Fairfield, Calif., CA $372,434, Sched. A, 3,000 ft. runway primary approach lighting, Hamilton Air Force Base, ENG-04-203-60-41, HAMILTON AIR FORCE BASE, CALIF. U. S. Eng., 180 New Montgomedy St., San Francisco, Calif. Bids June 14. CD 5/31.

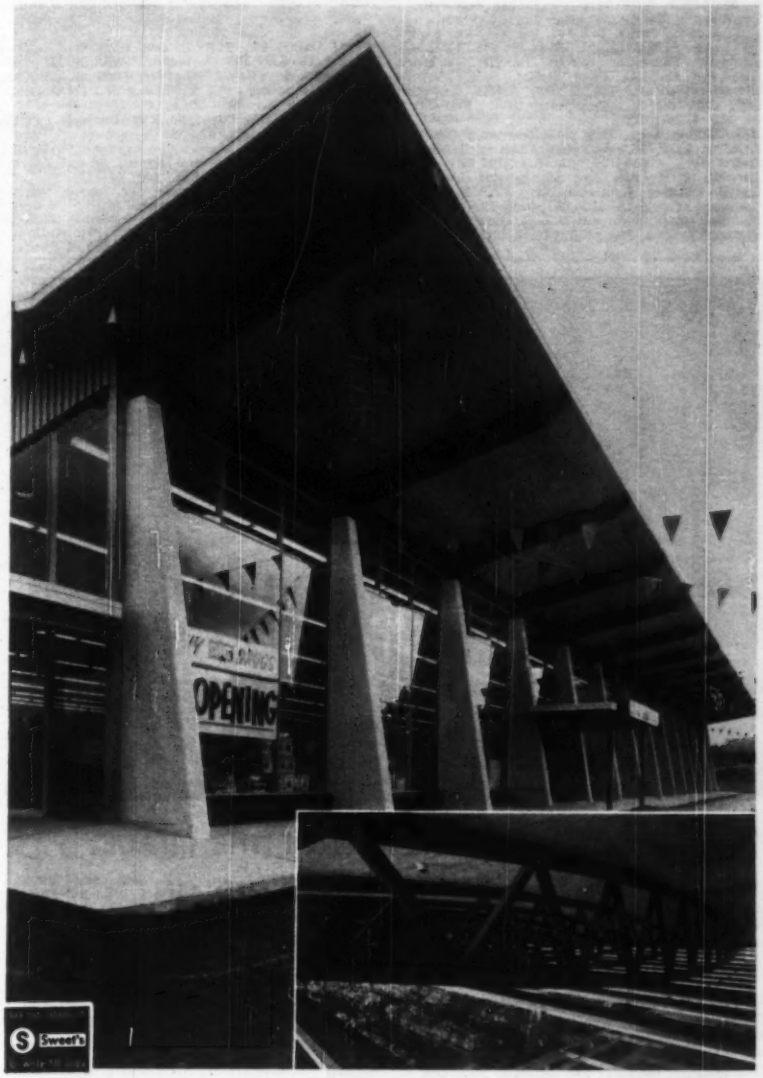
▲† **L. E. Dixon Co.** and **W. E. Kerr Constr. Co.**, 409 S. California St., San Gabriel, Calif., LB $1,734,900 (5 bidders), 51,500 sq. ft. concrete state hospital and clinic incl. utilities, Naval Air Station, NBy 29254 Spec. 29254/60, LEMOORE, CALIF. Dist. P. Wks. Office, 12th Naval Dist., San Bruno, Calif. Bids June 21. CD 6/15.

Pascal & Ludwig, Inc., 2240 Parkway Dr., El Monte, Calif., LB $125,900 (4 bidders), imprv. Washington Blvd. and S.P.R.R. underpass, LOS ANGELES, CALIF. Bd. Suprvs. Los Angeles Co., 501 Hall of Records, Los Angeles, Calif. Bids June 14. CD 5/26.

McGuire & Hester, 726 66th St., Oakland 21, Calif., CA $273,932, Alt. B, street imprvs. incl. excav., grading, surf. driveways, signs, curbs, manholes, water mains, etc., MOUNTAIN VIEW, CALIF. City, City Hall, Mountain View, Calif. Bids May 25. CD 5/11.

Lewis and Clark Shopping Center, Renton, Washington. Architects: Johnston and Campanella Renton. Contractor: Paul Nels Carlson, Seattle.

Space provided: 17,700 sq. ft. of store area, 3,200 sq. ft. of storage space, and office of 700 sq. ft. *Roof framing:* lenticular Tim-Trusses with glulam chords, spaced at 15'-4" and covered with heavy timber decking. *Exterior walls:* pre-cast concrete with exposed aggregate. *Interior walls:* smooth architectural concrete and frame with plaster finish. *Heating:* gas unit heaters. *Ventilation:* direct air intake distributed by anemostats. *Lighting:* incandescent and fluorescent. *Roof surface:* 20-year built-up roof with white marble chip finish. *Area:* 21,600 square feet. *Cost per square foot* including fees and site development: $13.00.



Handsome, open appearance of these heavy timber trusses makes a conventional ceiling unnecessary, permitting a worthwhile saving in cost. Lenticular design reduces cubage and enables lower chords to support a 14-foot canopy at the front of the building.

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† **Healy-Tibbitts Constr. Co.,** P.O. Box 1669, Long Beach, Calif., LB $154,203, est. $100,000 (1 bidder), rehabilitation harbor and LST dolphins, Naval Constr. Battalion Center, Spec. 30298, PORT HUENEME, CALIF. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego 1, Calif. Bids June 24. CD 6/6.

† **Cardan & Co.,** 9091 Santa Monica Blvd., Los Angeles, Calif., LB $115,000, est. $112,900 (3 bidders), security facilities, Naval Missile Facility, Point Arguello, Spec. 30306, POINT MUGU, CALIF. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego 1, Calif. Bids June 23. CD 6/10.

† **L. T. Anderson Constr. Co.,** P.O. Box 446, Red Bluff, Calif., LB $132,891, est. $147,356 (5 bidders), ground-air transmitter receiver facilities, antenna farm, Red Bluff Air Force Station, Spec. 2583A, ENG-04-167-60-43, RED BLUFF, CALIF. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids June 24. CD 5/25.

Paul R. Gardner Corp., 901 S. Sultana Ave., Ontario, Calif., CA $177,738, misc. signals, lighting, Downtown Control Sys., RIVERSIDE, CALIF. City, City Hall, Riverside, Calif. Bids June 15, awarded June 21.

† **Capitol Plumbing & Heating Co.,** P.O. Box 256, Carmichael, Calif., LB $106,847, rehabilitation heating plant and steam distrib. sys. Hospital Area, Mather Air Force Base, IFB 04-612-60-55, SACRAMENTO, CALIF. Base Procurement Office, Mather Air Force Base, Sacramento, Calif. Bids June 10. CD 5/19.

† **W. T. Chang,** 2760 D. Kalihi, Honolulu, Hawaii, LB $361,597, est. $250,000-$500,000, grounds drainage, Naval Radio Station, Lualualei, WAHIAWA, HAWAII. U. S. Navy, 14th Naval Dist., Honolulu, Hawaii. Bids June 28.

BUILDINGS—LB & CA

▲ **Lease Co., Inc.,** 1501 35th St., Seattle, Wash., LB $3,189,000, Base Bid, HIGH SCHOOL, ANCHORAGE, ALASKA. Anchorage Independent School Dist., 1602 Hillcrest Dr., Spenard Branch P.O., Anchorage, Alaska. Bids June 28. CD 5/23.

† **Metz Constr. Co.,** 3540 E. Golf Links Rd., Tucson, Ariz., LB $327,396 (6 bidders), WAREHOUSE and railroad spur, ENG-04-353-60-92, FORT HUACHUCA, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 21. CD 6/14.

▲ **Donald M. Drake Co.,** 1600 N.W. Savier St., Portland, Ore., LB $1,142,000 (8 bidders), 7 story, bsmnt. OFFICE, at Olympia Fire Hy. Dpt., OLYMPIA, WASH. State Dpt. General Admin., General Admin. Bldg., Olympia, Wash. Bids June 24. CD 6/3.

Dolph Jones, 2213 N. Procter St., Tacoma, Wash., LB $1,000,000 (8 bidders), general contract, 4 story, bsmnt. office, to be occupied by Employment Security Dpt. (Olympia, Wash.).

▲ **Andersen-Westfall Co., Inc.,** and **Commerce Investment, Inc.,** 3427 N.E. Halsey St., Portland, Ore., CA Est. $12,000,000, construct and lease POST OFFICE, PORTLAND, ORE. Post Office Dpt., 12th and Pennsylvania Ave. N.W., Wash., D. C. Bids June 20. CD 6/22, under LB.

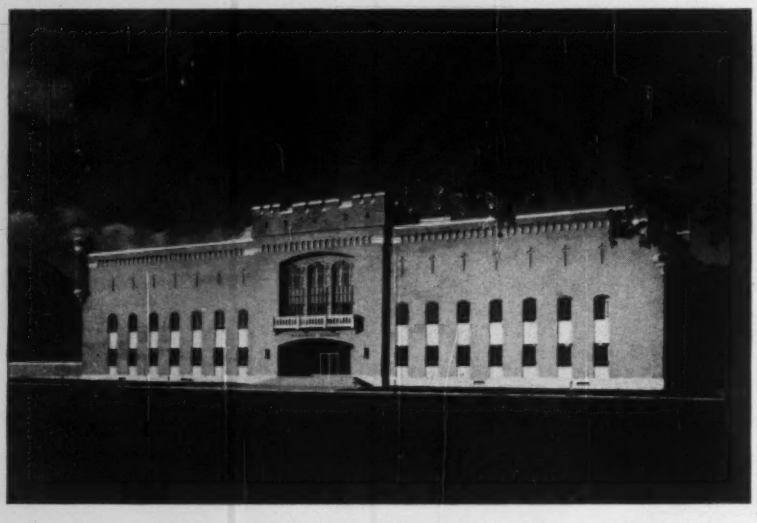
▲ **Oscar R. Wayman,** 3125 N.W. Front Ave., Portland, Ore., CA $1,320,120, CLASSROOM bldg. South, Portland State College, PORTLAND, ORE. State Bd. Higher Educ., Box 5175, Eugene, Ore. Bids May 26, awarded June 17. CD 6/3, under LB.

▲ **W. H. Shields,** P. O. Box 3037, Eugene, Ore. CA $1,268,468, 150 low rent HOUSING, SPRINGFIELD, ORE. Lane County Housing Authority, Courthouse, Eugene, Ore., Bids June 1. CD 6/14 under LB.

▲ **Lawrence Constr. Co.,** 3020 V St., Sacramento, Calif., CA $1,934,300, (4 bidders), Charles M. Goethe JUNIOR HIGH SCHOOL, 58th Ave. and Tamoshanter Way, SACRAMENTO, CALIF. Sacramento City Unif. School Dist., 1619 N St., Sacramento, Calif. Bids June 27. CD 6/22.

▲† **D. R. Kincaid, Ltd.** and **Giuli Constr. Co.,** 2101 Auiki St., Honolulu 17, Hawaii, CA $2,540,810, eight navigation structures, HAWAII. Commander, Coast Guard 14 Dist., Honolulu, Hawaii. Bids. May 31. CD 5/2.

▲ **Morrison-Knudsen Constr. Co.,** 200 Hoge Bldg., Seattle, Wash., LB $1,344,479 (4 bidders) grading, paving aprons and installation utilities, International Airport, Stage 6; Job 5883-6 F. A. A. 9-52-007-6004, HONOLULU, HAWAII. State, Office P. Wks., Corner Punchbowl and Queen Sts., Honolulu, Hawaii. Bids June 16 CD 5/25.



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CANADA

HEAVY CONSTRUCTION—BA

▲ **Que., Quebec City**—WHARF—BA 7/21—National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont. 687 ft. long wharf, north side St. Charles River Estuary, $1,600,000. Plans deposit $100. CD 5/31.

BUILDINGS—BA

▲ **Ont., Orillia**—COLLEGIATE—BA 7/12—Orillia Dist. Collegiate Bd., 8 Peter St., 61,000 sq. ft. split level concrete slab on grade, precast concrete exposed aggreg. structural panels, brick spandrels, collegiate $1,000,000. Plans deposit $50. Page & Steele, 72 St. Clair Ave. W., Toronto, archts. A. A. Goldes & Assocs., Ltd., 51 Yonge St., Toronto, engr. CD 3/4.

HEAVY CONSTRUCTION—LB & CA

▲ **John Laing & Son (Canada) Ltd.,** Annacis Industrial Estates, New Westminister, B. C., CA $1,093,110, Lamark Avalanche Shed, Trans-Canada Hy., Revelstoke Dist. BRITISH COLUMBIA, Govt. British Columbia, Parliament Bldgs., Victoria, B. C. Awarded June 22. CD 6/14 under LB.

BUILDINGS—LB & CA

▲ **Andeen Constr. Ltd.,** 269 Queen St. E., Brampton, Ont. CA est. $1,500,000, HOSPITAL expansion BRAMPTON, ONT. Peel Memorial Hospital Bd., Brampton, Ont. Bids June 7. Awarded June 16. CD 5/18.

▲ **Desourdy Constr. Ltee,** 3350 Blvd. Laurier, LaFleche, Que., CA est. $2,500,000, 6 story, bsmnt, brick, rein.-con. frame, HOSPITAL, GREENFIELD PARK, QUE. St. Lambert General Hospital, Tachereau Blvd., Greenfield Park, Que. Jean Paul Jolicoeur, 5220 Mentana St., Montreal, Que., archt.

▲ **Louiseville Constr. Ltee,** 9 Royale St. N., Louiseville, Que., LB $1,074,000, (9 bidders), ACADEMIE St. Louis de Gonzague, LOUISEVILLE, QUE. School Comn. of Louiseville, Louiseville, Que. Bids June 16. CD 6/16.

▲ **Byers Constr. Co. Ltd.,** 5675 Upper Lachine Rd., Montreal, Que., CA $1,575,000, (6 bidders), 3 story, MEDICAL and SURGICAL and 2 story Continuous-Care HOSPITAL addn., MONTREAL, QUE. Bd. Governors, Verdun General Hospital, 6875 LaSalle Blvd., Montreal, Que. Bids June 7. CD 6/2.

▲ **Julien & Jacob, Inc.,** 19 Dollard St., Baie Comeau, Que., CA $1,030,291, 4 story, 61x188 ft. NORMAL SCHOOL FOR GIRLS, HAUTERIVE, QUE. Rev. Soeurs de Ste. Croix, 815 St. Croix Blvd., St. Laurent, Que. Surveyor, Nenninger & Shenevert, 1440 St. Catherine St. W., engrs. CD 6/16/59.

▲ **Leasehold Constr. Corp.,** 6555 Cote des Neiges Rd., Montreal, Que., Owner Builds, $1,000,000, 2 story, 286x313 ft. concrete fdn., brick walls, steel WAREHOUSE, showroom, office, Cote de Liesse Rd., MONTREAL, QUE. Thibodeau & Thibodeau, 940 Cote de Liesse Rd., Montreal, Que., archts. CD 3/14.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲† **Owens-Farnsworth-Wright,** 1515 S. Salcedo St., New Orleans 2, La., U.S.A., CA $3,710,678 misc. support facilities, Riyadh, SAUDI ARABIA. U. S. Eng., Mediterranean Div., Leghorn, Italy, APO 19, New York, N. Y., U.S.A.

▲† **Grove, Shephard, Wilson & Kruge, Inc.,** 400 Madison Ave., New York, N. Y., U.S.A., CA $5,211,166, technical facilities near Ismar, TURKEY. U. S. Eng., Mediterranean Div., Leghorn, Italy, APO 19, New York, N. Y., U.S.A. Bids June 20. CD 5/31.

PROPOSED PROJECTS

WATER SUPPLY

▲ **N. C. Greensboro**—City of Greensboro, City Hall, Greensboro water filter plant addn. $1,200,000.

SEWERS, WASTE DISPOSAL

▲ **Me., Rockland**—City, City Hall sewage treatment plant, 1.3 mi. interceptor sewer, 1.7 mi. force main, 0.6 mi. outfall sewer, 4 pumping stations, $1,365,000, to go ahead 1963. CD 9/4/52.

▲ **O., Elyria**—City, City Hall, $2,000,000 bond election Nov. 8, for sewage plant expansion, $3,100,000. CD 6/9.

▲ **Que., Seven Islands**—Town, Town Hall, storm sewers, $1,000,000. Beauchemin, Beaton & Lapointe, 6655 Cote des Neiges Rd., Montreal, consult. engrs.

STREETS AND ROADS

▲ **MICHIGAN**—State Hy. Dpt., Mason Bldg., Lansing, Kent Co.—8 mi. Interstate 96 freeway from Grand Rapids to Grandville, Grand Rapids. $8,582,000.

EARTHWORK, WATERWAYS

▲† **Alabama and Georgia**—Cherokee County Soil Conservation Dist. and Bd. of Revenue and Terrapin Creek Watershed Conservancy Dist., Centre, Ala.; Calhoun County Soil Conservation Dist. and Commrs., Anniston, Ala.; Cleburne County Soil Conservation Dist., & Comrs., Heflin, water shed, protection Terrapin Creek 183,675 acres Cherokee, Calhoun, Cleburne and Polk Counties, Ala. and Harlason Co., Ga., for Soil Conservation Service, $2,263,029.

▲ **Tex., Daingerfield** — HYDRO PLANT—Southwestern Electric Power Co., 428 Travis St., Shreveport, La., hydro power generating plant, Lake O'the Pines near here, $6,000,000. Constr. in Spring 1961.

UNCLASSIFIED

▲ **N. Y., New York**—MARINA—Dpt. Marine & Aviation, Battery Maritime Bldg., New York Zone 4, marina, hotel, clubhouse, seaplane base, heliport, swimming pool, shopping center, from 300 ft. south Dyckman St. about 2,200 ft. northward on Hudson River. $3,570,000. Hudson Harbor Marina, Inc., 295 5th Ave., New York 10, N. Y., Lessee.

AMERICANS ABROAD

▲ **Ethiopia, Addis Ababa**—HOTEL—Development & Hotel Co. of Ethiopia, Addis Ababa, and Hilton Hotels International, 301 Park Ave., New York, N. Y., U.S.A., 250 room hotel. $4,890,000.

LATIN AMERICA

▲ **Nicaragua**—HOSPITAL—Nicaragua Govt., Managua, 237-bed hospital. $4,000,000.

FOREIGN

▲ **Israel**—Tel Aviv Municipality, sewage disposal plant and other development projects. $3,000,000.

PUBLIC BUILDINGS

▲ **Ala., Jacksonville**—DORMITORIES, DINING HALL—Jacksonville State College, 2 college dormitories, $800,000; dining hall, $1,000,000. CD 10/29/56.

▲† **Del., Wilmington** — COURTHOUSE, etc. — General Services Admin., 19th and F Sts., NW, Wash., D. C., courthouse, customhouse, federal office, $7,110,000. (appropriation).

▲† **Fla., Tampa**—FEDERAL OFFICE—General Services Admin., 19th and F Sts. NW, Wash., D. C., federal office, $3,728,000, (No appropriation).

▲† **Hawaii, Honolulu**—POST OFFICE, etc.—General Services Admin., 19th & F Sts. N. W., Wash., D. C., post office and courthouse. $23,500,000. (no appropriation).

▲ **Ill., Crystal Lake**—SCHOOL—Bd. Educ., School Dist. 155, 45 Franklin St., Plans by Perkins & Will, 309 W. Jackson Blvd., Chicago zone 6, East High School, $1,500,000. Bids about July 15. (Correction Proj. Location) CD 6/23.

▲† **N. M., Albuquerque**—COURTHOUSE AND FEDERAL OFFICE—General Services Admin., 19 and F Sts., N.W. Wash., D. C., courthouse and federal office, $10,700,000, no appropriation.

▲ **N. Y., New Hyde Park**—SCHOOL—Bd. Educ. Union Free School Dist. No. 9, Town of North Hempstead, New Hyde Park, plans by Frederic P. Wiedersum, Assocs., 65 Roosevelt Ave., Valley Stream, N. Y., senior high school addn. $2,346,000. CD 4/15/55.

▲ **N. Y., Oyster Bay**—HIGH SCHOOL—Bd. Educ., Union Free School Dist. No. 5, Oyster Bay, plans by Frederic P. Wiedersum Assoc., 65 Roosevelt Ave., Valley Stream, N. Y., Glen Cove high school, Dosoris Lane, Glen Cove. Over $2,500,000. Foster & Cafarelli, 65 Roosevelt Ave., Valley Stream, N. Y., consult. engr. (Correction-Engineers). CD 6/20.

▲ **O., Berea**—SCHOOLS—Berea Bd. of Educ., 390 Fair St., plans by Mellenbrooke, Foley & Scott, 20 Beach St., high school, $3,500,000. CD 5/9.

▲† **O., Cleveland**—OFFICE—Gen. Serv. Admin., 19th and F Sts., NW, Washington, D. C., Federal Office, $47,921,000. (No appropriation).

▲ **O., Kettering**—SCHOOL—Kettering Bd. Educ., school bond election Nov. 8, $4,950,000. CD 5/10.

▲ **O., Shaker Heights**—SCHOOLS—Bd. of Educ., 3115 Woodbury Rd., Cleveland Zone 20, bond election Nov. 8, $1,775,000 bonds for schools. Plans by Charles Bacon Rowley & Assoc., Keith Bldg., Cleveland, Zone 5, high school addn. Fulton, Dela Motte, Larson & Nassau, 6014 Euclid Ave., Cleveland, Zone 3, administration bldg. CD 1/28.

▲† **S. D., Pierre**—POST OFFICE, etc.—General Services Admin., 19th & F Sts. N.W., Wash., D. C., post office and courthouse. $3,415,000.

▲ **Tex., Port Arthur** — SCHOOL — Port Arthur Ind. School Dist., High School, $3,140,000 bonds defeated. CD 6/1.

▲ **Wash., Kennewick**—SCHOOL—School Dist. 17, 500 S. Dayton St., bond election Sept. 13, junior high school, $1,215,000.

▲ **Wash., Longview**—SCHOOL—School Dist. 122, bond election Sept. 13 on special levy, financing junior high school, $1,000,000. CD 6/8.

▲ **Wash., Seattle**—LINEAR ACCELERATOR BLDG.—University of Washington, zone 5, linear accelerator bldg., nuclear research, $1,000,000. Constr. 1962.

▲ **Wash., Tacoma**—SCHOOL—Clover Park School Dist., No. 400, 5214 Steilacoom Blvd., plans by D. F. Burr & Assoc., Lakewood Center, High School, $2,750,000.

COMMERCIAL BUILDINGS

▲ **Ala., Birmingham**—OFFICE—Southeastern Properties, Inc., c/o J. H. Perkins, 1921 11 Ave. S., 15 story office, parking areas, 8 Ave. and 19 St., S., $3,000,000.

▲ **Ariz., Phoenix**—SHOPPING CENTER—O. E. Helsing, 3642 Pasadena Ave., plans by Harry Youngkin, 4710 N. 16th St., 75,000 sq. ft. West-Glen Shopping Center, 35th Ave. and Glendale, $1,000,000. Robert G. Neibur, consult. engr.

▲ **Calif., Crockett** — HOMES — Crockett Development Association, 2 Rolph Park Court, Crockett, 200 homes subdivision, Rolph Park Heights. $3,500,000.

▲ **Calif., Menlo Park**—MOTEL—Teal Corp., Christenson & Garner, Palo Alto, Stanley Mattson & Assoc., 638 San Antonio Rd., Mt. View. 7 story motel & office, apt. $3,000,000.

▲ **Calif., Mill Valley**—MOTEL—A. D. Christenson, Stankey Mattson & Assoc., 638 San Antonio Rd., Mt. View. wood frame & stucco motel. $3,000,000.

▲ **Calif., Pinole Valley**—HOMES—California Horizons Inc., Mill Valley, 300 homes, Foothill Estates. $5,550,000.

▲ **Conn., Bridgeport**—APARTMENTS—Abner Rosenberg, Inwood Rd., Woodbridge, apartment, $1,000,000.

▲ **Conn., East Haven**—YACHT CLUB—The Cove, Inc., c/o Dominic A. DePonte, 183 Main St., yacht and beach club, Mansfield Grove Rd., $1,000,000.

▲ **Conn., Southington**—SHOPPING CENTER—Frank J. Cianci, 544 Mill St., plans by Philip J. Di Corcia, 364 W. Middle Tpk., Manchester, shopping center, $1,000,000.

▲ **Ill., Willmette**—APARTMENT—Syndicate, plans by Ralph D. Huszagh, archt., 6 N. Michigan Ave., Chicago, Zone 2, 7 story apartment, Sheridan Rd. and Wilmette Park, $1,750,000.

▲ **Mo., St. Louis**—MEMORIAL WING—St. Luke's Episcopal-Presbyterian Hospital, Bd. Dirs., 5535 Delmar Blvd., Zone 12, plans by Kenneth E. Wischmeyer, 911 Locust St., St. Louis 1, Mo., 5 story John Fowler Memorial Wing addn. $2,200,000.

▲ **N. J., Levittown**—SHOPPING CENTER—Owner, c/o Morris A. Kravitz, Inc., 225 S. 15 St., Phila., Pa., shopping center, Burlington Twp., $5,000,000. Constr. 1962.

▲ **N. S., Springhill**—HOSPITAL ADDN.—All Saints Hospital, 10 Princess St., plans by Keith L. Graham & Assoc., 53 Spring Garden Rd., Halifax, hospital wing, $1,000,000. Brett, Ouellette, Blauer Assoc., 43 Sackville St., Halifax, consult. engrs.

▲ **N. Y., Brooklyn**—AUDITORIUM-GYMNASIUM etc.—Central Yeshiva Inc., 19 Grant Sq., Zone 16, plans by Arnold W. Lederer, 66 Court St., Brooklyn 1, N. Y., 2 story auditorium, gymnasium and classroom. $1,000,000.

▲ **N. Y., Buffalo**—APARTMENT—Capri Apartments, c/o BAW Constr. Co., 84 Colorado, plans by Backus Crane & Love, 232 Delaware Ave., Buffalo, N. Y., 10 story 80 unit apartment, 1217 Delaware Ave. $2,250,000. Constr. fall.

▲ **N. Y., Buffalo**—STUDENT ACTIVITY—University of Buffalo, Main St., plans by Duane S. Lyman, 505 Delaware Ave., Buffalo, N. Y., 3 story student activity. $3,650,000. CD 7/21/59.

▲ **O., Columbus**—HOUSING FOR AGED—First Community Church, 1320 Cambridge Blvd., plans by Tibbals-Crumley, Musson, 965 E. Broad St., housing for aged, W. 5th Ave. and Riverside Dr., $5,000,000. CD 12/9.

▲ **O., Columbus**—MOTEL—Peoples Broadcasting Corp., 246 N. High St., Worthington, plans by Gamble, Pownall & Gilroy, 1407 E. Las Olas Blvd., Ft. Lauderdale, Fla. motel. $1,000,000.

▲ **O., Columbus**—SHOPPING CENTER—Frank C. Amos, Harrison W. Smith, 50 E. Broad St. plans by Leon Seligson, 490 City Park Ave., Columbus, Amos shopping center Cleveland Ave. North of Innis Rd. Construction this fall. $2,500,000.

▲ **O., Sidney**—MOTEL—Paul Frydman & Assocs., Commercial Bldg., Dayton. 50 unit motel, shopping center, swimming pool, Rt. 47 & U. S. 25. $1,500,000.

▲ **Pa., Doylestown**—MONASTERY AND CHURCH—Pauline Fathers, Ferry Rd., plans by W. O. Biernacki, 26 Park St., Montclair, monastery and church, $3,000,000.

▲ **Tex. Houston**—SHOPPING CENTER—Nierth Bros. Builders, 4072 Westheimer St., Houston, shopping center, Afton Village. $2,000,000.

▲ **Tex., Houston**—MOTOR HOTEL—Hilton Hotels Corp., 9990 Santa Monica, Beverly Hills, Calif., motor inn hotel, $3,000,000.

▲ **Utah, Ogden**—SHOPPING CENTER—Morrin & Son Co., Inc., 473 W. 2nd St., plans by A. G. Youingberg & Assoc., 6919 S. Main, Bountiful, Utah, shopping center between 1900 and 2000 N on Eastside Washington Blvd. and Jilville Subdivision. $6,000,000.

▲ **Utah, Salt Lake City**—BANK & OFFICE—D. H. Byrd Enterprises, c/o Harwood K. Smith & Partners, archts., Southland Center, Dallas, Tex., 8 story, 94,000 sq. ft. rein.-con. steel bank and office. $2,400,000.

▲ **Va., Alexandria**—HOME FOR AGED—Virginia Methodist Conference, Methodist Bldg., Richmond, home for the aged, Bailey's Crossroads, $3,000,000.

▲ **Va., Lynchburg**—HOUSES—W. Goode Robinson, Timberlake Rd., 212 houses, Fairfields, $2,000,000.

▲ **Va., Manassas**—HISTORICAL CENTER, PLANETARIUM — Virginia International Center, Inc., 4220 N. Randolph, Arlington, historical center, $2,000,000; planetarium, $1,000,000.

▲ **Va., Portsmouth**—HOSPITAL ADDN.—Portsmouth General Hospital, Leckie St., plans by A. Ray Pentecost, Jr., 21 St. and Colonial Ave., Norfolk, hospital addn., $1,700,000. Bids about Aug. 15. CD 10/27.

▲ **Va., Richmond**—HOSPITAL—Virginia Methodist Conference, Methodist Bldg., hospital, $1,000,000.

▲ **Va., Winchester**—SHOPPING CENTER—Rosenfeld Realty Co., 2600 Connecticut Ave. N. W., Washington, D. C., shopping center, over $1,000,000.

▲ **Wis., Wauwatosa**—HOSPITAL—Lakeview Hospital, 1749 N. Prospect Ave., Milwaukee, plans by Herbst, Jacoby & Herbst, 1249 N. Franklin St., Milwaukee. hospital, $1,000,000.

▲ **Wis., Tomahawk**—HOSPITAL, NURSES' HOME—Sisters of the Sorrowful Mother, plans by Mark F. Pfaller Assoc., 7613 W. State St., Wauwatosa Zone 13, hospital and nurses home, $2,000,000.

▲ **Man., Transcona**—SHOPPING—Allan Killam & McKay Ltd., Managing Agents, 292 Main St., Winnipeg. Northgate Shopping Plaza, $1,200,000.

▲ **Ont., St. Catharines**—HOSPITAL—St. Catharines General Hospital, Bd. Governors, plans by Govan, Ferguson Lindsay, Kaminker, Langley and Keenleyside, 10 Price St., Toronto, 6 story hospital wing, Queenston St., $3,615,570.

▲ **Ont., Toronto**—SHOPPING CENTER, OFFICE—Perpetual Investments Ltd., c/o Bregman & Hamann, architects, 146 Bloor St. W., 3 story, 80,000 sq. ft. shopping center, 15,000 sq. ft. office, $2,000,000.

INDUSTRIAL BUILDINGS

▲ **Ala., Bessemer**—PLANT ADDN.—H. K. Porter Co., Inc., 2800 Alabama Ave., brick mfg. plant addn., $2,000,000. Swindell-Dresser Corp., P.O. Box 1888, Pittsburgh, Pa., consult. engr. CD 2/11.

▲ **Fla., Port St. Joe**—MILL—Florida Gulf Fiber Co., Florida National Bank Bldg., Jacksonville, paper mill, $13,000,000. Helmick & Lutz, 1801 Nicollet Ave., Minneapolis, Minn., consult. engrs.

▲ **Ill., Peoria** — PLANT — Archer-Daniels-Midland Co., Investors Bldg., Minneapolis, Minn., chemical plant, $15,000,000. Girdler Constr. Corp., P.O. Box 174, Louisville, Ky., consult. engr. CD 5/26.

▲ **N. Y., Cheektowaga**—WAREHOUSE—S. M. Flickinger Co., Inc., 180 Niagara Frontier Food Terminal, Buffalo, N. Y., plans by Stanley C. Podd & Assoc., 361 Delaware Ave., Buffalo, N. Y., 150,000 sq ft. steel, concrete block, etc. food warehouse, Gardenville Industrial Park, $1,250,000.

▲ **Tex., Houston** — MILL — Sheffield Steel Div., Armco Steel Corp., Industrial Rd., Houston, steel machine straightening mill unit, $3,250,000. CD 3/1/57.

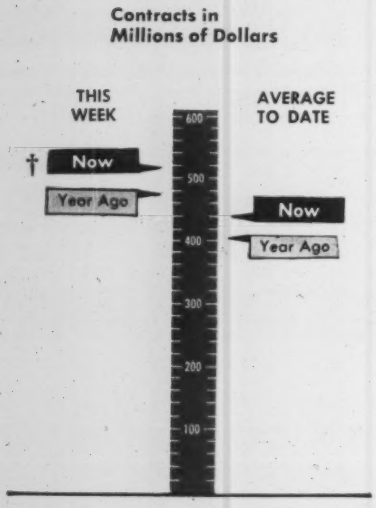
▲ **Tex., Port Arthur**—RESEARCH CENTER—Texaco, Inc., 401 W. 19 St., plans by Pitts, Mebane & Phelps, 1872 Colder St., Beaumont, archt.-consult. engrs., research center, 15 laboratories, office, 6 pilot plants, service bldg., covered walkways, Hy. 73 and Savannah Ave., $7,500,000. CD 5/18/54.

▲ **Wash., Wallula**—PULP AND PAPER PLANT EXPANSION—Boise-Cascade Kraft Corp., pulp and paper plant expansion, $5,000,000. Constr. this year.

▲ **Man., Transcona**—PLANT—Catelli Food Products Ltd., 25 Manchester St., Toronto, Ont., 60,000 sq. ft. plant, $1,000,000.

Construction Scoreboard

This Week . . .



AMOUNT OF CONTRACTS LET

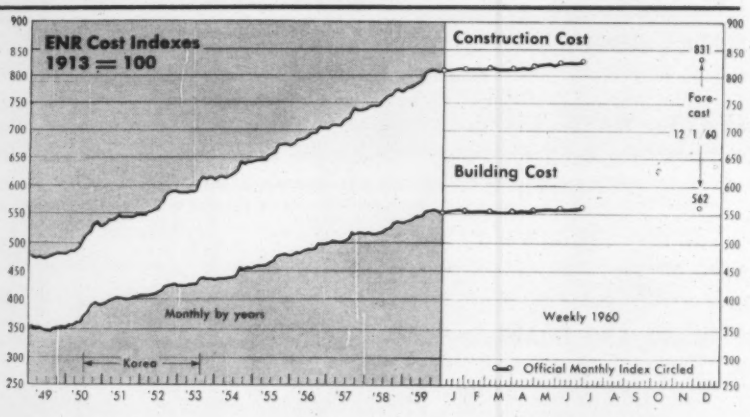
Contracts Awarded In 50 States By Type	This† Week	Cum. 27 wks 1960	Chge '59-'60
	millions		%
All Heavy Construction	$518.7	$11,880.7	+ 9
By Ownership			
PRIVATE	250.9	6,386.8	+21
PUBLIC	267.8	5,493.9	− 2
State & Municipal	179.5	4,113.1	+ 4
Federal	88.3	1,380.8	−17
By Type of Work			
PUBLIC			
Waterworks	10.8	247.7	+ 6
Sewerage	17.2	308.1	−12
Bridges*	13.8	415.5	+28
Highways	82.5	1,688.4	+ 1
Earthworks, Dams & Waterways	22.8	451.4	+ 1
Buildings:			
Excl. Housing	70.3	1,260.9	−11
Housing	18.4	320.6	−22
Unclassified	32.1	802.6	+ 4
PRIVATE			
Buildings:			
Mass Housing	83.0	3,253.9	+34
Commercial	62.7	1,228.8	+ 5
Industrial	95.7	1,387.4	− 1
Unclassified	9.4	515.4	+87

*Includes Private bridges
† 4-Day Week

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of June 30	Cum. 26 wks 1960	Chge '59-'60
	millions		%
Corporate Securities	$ 48.0	$1,530.9	−28
State and Municipal:			
All Except Housing	145.6	3,539.5	+12
Housing	0.9	182.2	+316
Federal Loans	3.6	77.3	+ 7
Federal Aid	....	2,717.8	+1410
Total Nonfederal	$198.0	$8,047.2	+48
Federal Appropriations:			
Projects in U.S.	....	191.6	+50
Outside U.S.	4.0	10.8	....
Total New Capital	$202.0	$8,249.5	+51



ENR INDEXES (1913 = 100), 20-cities' average	Week of June 30 1960	% Change from June 1960	% Change from July 2 1959
Construction Cost	829.33*	+0.3	+2.8
Building Cost	561.47*	+0.3	+1.8

* Official Monthly Index for July, 1960.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

This Month . . .

WAGE RATES, 20-cities' average	July 1960	% Change from June 1960	% Change from July 1959
Common	$2.724	+0.6	+4.6
Skilled (average 3 trades)	4.050	+0.7	+4.2
Bricklayers	4.267	+0.5	+3.0
Structural Ironworkers	4.076	+0.5	+4.6
Carpenters	3.808	+0.8	+5.1
Equipment operators (average three types)	3.664	+0.7	+4.7
MATERIAL PRICES, 20-cities' average			
Structural Steel (average 3 mills), per cwt	5.50	0	0
Lumber, 2x4 Fir, per M fbm	119.43	−0.7	−4.5
Lumber, 2x4 Pine, per M fbm	110.80	−0.3	+1.3
Cement, bulk, per bbl	4.01	0	+1.2
Sand, per ton	2.467	0	0
Ready-mixed concrete, per cu yd	14.30	0	+2.2
Gypsum sheathing, 1/2"x2'x8', per Msf*	62.62	−0.4	−0.4
Fiber board sheathing, 1/2" sq. ed., per Msf*	71.64	−1.9	−0.04
Mineral wool insulation, 3' batts, per Msf*	67.93	−1.0	−1.8
Crushed stone, 1 1/2", per ton, CL	2.668	+0.1	−2.6
Concrete blocks, sand/gravel, 8"x8"x16", each*	0.2323	−2.0	+1.0

Latest Month . . .

	June 1960	May 1960	June 1959
Brick, common per M	40.90	+0.5	+5.8
Lime, hydrated finishing, per ton, CL	39.09	−0.8	−0.1
Structural clay tile, 3x12x12", per M, 2,000 up*	189.26	0	+3.5
Vitrified clay sewer pipe, std 12", per ft	1.436	−0.1	+6.8
Concrete sewer pipe, 12", per ft	1.416	−2.1	+7.7

* Delivered, trucklots

ENR INDEX REVIEW

	Construction Cost		Building Cost		Volume	
	1913 = 100	1949 = 100	1913 = 100	1949 = 100	1913 = 100	1949 = 100
1959						
Jun	794.36R	166.53R	548.35	155.87	650	188
July	805.89R	168.95R	551.74	156.84	671	194
Aug	810.35R	169.93R	554.31	157.60	509	147
Sept	811.76R	170.18R	555.88	158.01	545	158
Oct	810.60R	169.94R	555.40	157.88	415	120
Nov	808.98R	169.60R	554.19	157.53	509	147
Dec	807.85R	169.36R	552.30	157.10	436	126
1959 Average	**796.91R**	**167.07R**	**547.82**	**155.72**	**540**	**156**
1960						
Jan	811.84R	170.20R	554.40	157.57	432	125
Feb	812.73R	170.38R	555.43	157.92	486	140
Mar	813.26R	170.49R	555.16	157.81	533	154
Apr	814.78R	170.81R	555.23	157.83	696	201
May	822.58R	172.45R	557.66	158.52	612R	177R
June	826.64R	173.30R	559.93	159.16	785	227
July	829.33	173.86	561.47	159.60	...	...

R: Revised

Cement Prices: Higher in 1961

- **Change in tax laws means you can expect price boosts, probably in January.**
- **Boost could be anywhere from 20 to 30 cents a barrel, depending on competition.**

Higher cement prices in 1961 appear to be a foregone conclusion. Tax legislation passed by Congress last week is the basis for the prediction.

The price-change trigger is contained in an amendment to a bill extending present corporate and federal excise tax rates for another year. This amendment tightens the tax laws on deduction of percentage depletion allowances to bar inclusion of certain manufacturing processes in the computation.

Effect of the law will be felt widely in cement, although other materials—clay products, brick and some types of roofing—will also be affected.

Many variables enter into cement pricing in addition to depletion allowances—competition, demand, labor costs and construction activity. But the new legislation will definitely cut deeply into the earnings of cement manufacturing companies when it becomes effective in 1961. The head of one major East Coast producer says that it will take 60 to 80 cents out of per-share earnings.

It is axiomatic that any factor that tends to cut profits will usually bring changes in prices if improved manufacturing methods cannot fully offset the earnings drop.

Competitive and general market conditions, of course, play an important role in determining whether there will be a price increase and, if so, how much it will be.

The head of another company says, "If one boosts prices and it sticks, others will try it, depending on conditions in the regions the companies serve. If others don't raise prices, however, the leader may be out in the cold and be forced to pull in his horns."

Lending support to belief that a price hike—perhaps a hefty one—is in the cards for 1961 is the lower earnings registered by most cement producers so far this year.

The first quarter was generally poor. "The weather murdered us," says one executive. He adds that the quarter ended June 30 is expected to show an improvement when the complete results are computed, "but the first half as a whole will still be worse than last year. The remainder of the year probably will show some improvement, and in our shop at least, 1961 is expected to be a good year."

The outlook for a good year in 1961 does not make price increases less likely. They are no more palatable to the contractor, but strong demand helps nail a cement-price boost more firmly in place.

Most of the cement companies declined to estimate the effects of the new legislation in terms of price per barrel. Spokesmen for two major companies, however, spoke in terms of 20 and 30 cents.

The lower figure is quoted by a Midwest producer, the higher one by a West Coast manufacturer.

Both say those are the increases they would like to get, but "competition—severity or lack of it—will be a deciding factor."

Competition is not limited to domestic companies. One producer in the Midwest says cement from abroad is adding its weight to a market that so far this year has been soft. The foreign material is expected to continue flowing into the country, and therefore may tend to temper the extent and amount of possible price increases.

Some companies say it is too early to consider or project the dollars and cents effect of either the U.S. Supreme Court decision or the legislation. They say however, that the results of both will be adverse, and therefore pressure will be on companies to lift prices next year.

The court decision referred to involved Cannelton Sewer Pipe Co. of Cannelton, Ind. (ENR June 30, p. 15). The company claimed depletion on the value of its finished pipe instead of on the value of raw clay and shale. The court disallowed the method.

Cement firms may try to convince the court theirs is a different problem in order to obtain tax refunds.

Business in Brief . . .

• **More territory**—Austin Co., Cleveland engineering and construction company, will provide all its services to U.S. and Canadian firms planning construction in Australia through an agreement with A. J. Anderson (N.S.W.) Pty., Ltd., North Sydney. Austin will estimate the jobs on the basis of local prices provided by Anderson. Austin will assume responsibility for engineering and construction.

• **Money for schools**—Alabama has sold $70 million worth of school construction bonds. Authorized, but not sold, is another $30 million. Construction contracts will be let by the Alabama Education Authority.

• **Plant improvement** — Republic Steel Corp. will spend $26 million for plant improvement at its Cleveland installation. Preliminary engineering is now under way for the plant's 10-in. bar mill.

• **Greater capacity**—Aluminum Company of America will spend more than $18 million in the next two years to expand and modernize its two major sheet mills at Davenport, Iowa, and Alcoa, Tenn. Outlays at Davenport will top $10 million and those at Alcoa, $8 million.

• **Suit threatened**—Work on the new $12-million Marin County (Calif.) civic center will go ahead despite threats of a taxpayer's lawsuit that would be aimed at blocking construction of the structure, designed by the late Frank Lloyd Wright (ENR Feb. 25, p. 25). Rothschild, Raffin and Weirick, San Francisco, hold the contract for the $3.5-million, first-phase operation.

• **Washington school market**—Washington's State Board of Education estimates it will need $122 million worth of school buildings in the biennium starting in 1961.

First-Half Volume Nudges Old Record

Heavy construction contract awards this year continue to chip away at the foundation of the record set in 1956. Volume of new business going to contractors during this year's first half totaled $11.36 billion—only $1.4 million short of the 1956 record half.

Awards in June—a five-week month—totaled $2.89 billion and established a record average weekly rate for a June month of $576.9 million.

The June total was 28% above May and 22% above one year ago. Cumulative volume for the six months is now 9% ahead of the same period last year.

Private work is carrying the ball. Its volume of $1.6 billion in June brought the six-month figure to $6.1 billion, a 21% boost over a year ago. The June figure is 42% above May and 41% above June 1959.

Public work, in comparison, is dragging its feet on a six-month basis. Contracts of $5.2 billion are 3% behind a year ago. The June total of $1.3 billion, however, is 14% above May and 4% ahead of one year ago on a weekly average basis.

State and municipal work in the first half totaled $3.93 billion, a 5% rise over last year. Federal work, however, dropped 20% to a six-month tally of $1.3 billion.

During June, federal contracts rallied. The total of $328 million being 56% above May and 11% above June 1959. State and municipal work in June amounted to $896 million, a rate 2% above both the previous month and June 1959.

In the private sector, mass housing contracts continue to leap ahead. The six-month total of $3.17 billion is 35% above the same period of last year. And the June volume of $913 million is 69% above May and 54% above one year ago on a weekly average basis.

Commercial buildings contracts, sparked by shopping centers and offices, went 4% ahead of last year to $1.17 billion. For June, the $308 million worth of contracts represented a 56% increase over May and a 44% rise over June 1959 on a weekly average basis.

In the public works sector, highway and bridge contracts both registered gains over the first half of last year. Highways, with volume of $1.6 billion in the first six months, are 2% above last year. Bridges scored a 32% gain in the period with contract awards of $400 million. Both types of work should pick up speed in the next three months as a result of the Administration's move to make available $1.44 billion for the Interstate (ENR June 30, p. 19). This is double the amount originally scheduled for obligation to the states in the federal government's first fiscal quarter starting July 1.

July Costs Reach New Record

Wage boosts for construction workers under new labor contracts and deferred increases under existing contracts shove building and construction costs to new highs for the fourth consecutive month.

ENR's 20-Cities Construction Cost Index is at a record 829.33. The ENR 20-Cities Building Cost Index is at a record 561.47. Both indexes are based on 1913 as 100.

In New York City, a new contract effective July 1, boosts common labor wages for construction 16.2 cents an hour. Deferred hourly wage increases of 10 cents for Atlanta laborers and five cents for Dallas laborers also went into effect July 1.

In June, new contracts boosted hourly rates for common laborers on buildings work 12½ cents an hour in Kansas City and 15 cents in Pittsburgh.

Both indexes are 0.3% above their June values. The Construction Cost Index is 2.8% above a year ago; the Building Cost Index is 1.8% higher.

The rise in the Building Cost Index reflects a 16.2-cent hourly increase for carpenters and a 4.6-cent hourly boost for structural ironworkers in New York under new contracts effective July 1. Deferred boosts add their weight: 10 cents hourly for carpenters in Atlanta and Denver; 10 cents an hour for Atlanta bricklayers; 15 cents for structural ironworkers in Birmingham; 2½ cents for structural workers in Denver.

Engineering Construction Contracts for June

Thousands of Dollars (000 omitted)

	June, 1960											
	New England	Middle Atlantic	South	Mid-West	Mississippi to Rockies	Far West*	Total U. S.	% Change '59 to '60 (av wk)	—U. S. Cumulative— 1960	1959	% Change '59 to '60	Canada June 1960
Public Works, Total	**59,164**	**192,414**	**206,345**	**167,352**	**306,990**	**345,720**	**1,277,985**	**+ 4**	**5,225,996**	**5,373,906**	**− 3**	**102,912**
Waterworks	2,739	3,673	13,908	7,398	13,565	13,282	54,565	+44	236,927	220,051	+ 8	4,348
Sewerage	7,162	15,128	10,244	19,218	10,692	15,328	77,772	− 6	290,987	327,417	−11	3,003
Bridges	686	4,023	16,191	13,396	8,381	5,715	48,392	−37	400,373	303,569	+32	10,280
Earthwork, waterways	1,593	3,209	14,546	8,605	27,747	84,592	140,292	+39	428,660	431,276	− 1	5,791
Streets and roads	8,992	59,689	67,801	60,523	85,326	70,338	352,669	−12	1,605,775	1,581,739	+ 2	39,046
Buildings: Residential	2,711	19,767	21,941	12,106	36,338	5,401	98,264	−21	302,187	393,296	−23	6,629
Other	17,093	60,433	47,958	33,871	46,884	53,603	259,842	− 3	1,190,465	1,376,778	−14	27,312
Unclassified	18,188	26,492	13,756	12,235	78,057	97,461	246,189	+82	770,622	739,780	+ 4	6,503
State & Municipal	41,463	157,262	150,722	148,415	171,329	226,810	896,001	+ 2	3,933,501	3,759,036	+ 5	85,815
Federal	17,701	35,152	55,623	18,937	135,661	118,910	381,984	+11	1,292,495	1,614,870	−20	17,097
Private, Total	**87,394**	**639,028**	**191,705**	**201,915**	**308,746**	**177,901**	**1,606,689**	**+41**	**6,135,977**	**5,052,792**	**+21**	**64,084**
Bridges									1,499	3,450	−57	
Buildings: Industrial	8,206	35,324	48,854	37,628	77,659	60,752	268,423	+ 3	1,291,752	1,368,982	− 6	24,710
Mass housing	60,566	516,222	36,442	131,225	113,306	55,690	913,451	+54	3,170,897	2,344,227	+35	10,174
Other	17,839	86,194	43,346	29,944	76,133	54,488	307,944	+44	1,165,997	1,120,200	+ 4	28,189
Unclassified	783	1,288	63,063	3,118	41,648	6,971	116,871	+72	505,832	215,933	+134	1,011
Total, June 1960—5 weeks*	**146,558**	**831,442**	**398,050**	**369,267**	**615,736**	**523,621**	**2,884,674**	**+22**				**166,996**
Total, May 1960—4 weeks*	122,721	310,038	243,469	329,458	528,451	269,134	1,803,271	....			....	252,925
Total, June 1959—4 weeks*	106,507	413,310	290,358	419,166	342,809	320,977	1,893,127	....			....	126,118
Six Months—1960*	**668,985**	**2,734,764**	**1,547,991**	**1,812,219**	**2,535,001**	**2,063,013**	.....	....	**11,361,973**	.....	**+ 9**	**1,030,522**
Six Months—1959*	636,468	2,396,824	1,734,326	1,757,162	2,125,895	1,776,023	.....	....	.....	10,426,698	....	664,125
% Change '59 to '60	+5	+14	−11	+3	+19	+16	.....	....	.....	.....	....	+55

* Includes Alaska & Hawaii contracts

Four Trades Strike in New York City

Contractors fail to sell a three-year package worth 65 cents or more. A California pact grants 75 cents.

Efforts of New York City employers to sell union construction workers on a three-year program of labor peace and wage stability hit a roadblock last week when the employers failed to settle with 13 trades before their contracts expired June 30.

Contractors had hoped that three-year, 65-cent packages concluded earlier with several trades would establish a pattern for the rest.

Steamfitters, sheet metal workers, asbestos workers and laborers (concrete mix) struck on Friday. Nine trades, including plumbers, stayed on their jobs while bargaining continued.

Last of the city trades to settle before the strikes were called were the ornamental and structural iron workers, who have nailed down some of the highest wage increases won by construction workers so far this year.

Of the two trades, the structural iron workers, then earning $4.60 an hour plus 11% in fringe benefits, got the most—a 70-cent increase in base pay and a 1% increase in the vacation fund contribution. Payment of the base pay increase is deferred until January 1, when the first of four installments—35 cents—begins. This is followed by increments of 10, 10 and 15 cents at six-month intervals.

The ornamental iron workers followed the Cement Alliance pattern of a 65-cent wage increase spread over three years (ENR June 16, p. 83). The first increase of 10 cents became effective July 1. This will be followed by four installments of 15, 10, 10 and 20 cents at six-month intervals. Old fringe benefits that add up to 15% will continue. Before the new contract, the union scale was $4.25.

However large these increases may seem to some, they were recently topped by a nine-county, three-year labor agreement between the Plumbing-Heating & Piping Employers Council of Southern California and the Southern California Pipe Trades District Council 16.

That contract calls for a 25-cent basic wage increase during each of the three years. Fringe benefits will total 15% of base pay, which moved to $4.33 on July 1, when the first pay boost installment of 25 cents became effective. Among the fringe benefits that were liberalized were health and welfare, and apprenticeship. A new industry promotion fund was established with one of its aims being promotion of the contract method of construction.

Three compensating factors in the southern California pipe trades agreement are formula changes that lower the cost of overtime and travel pay, and a provision that frees contractors from the necessity of fabricating materials in union shops in the job area.

Elsewhere, operating engineers in Rhode Island have accepted a two-year contract that grants a package increase of 60 cents for heavy construction and 55 cents for building work.

The principal difference is that heavy construction workers get a 20-cent increase this year, as opposed to the 15 cents received by those in building work. Both groups get a 25-cent increase next year. Both also get a new 15-cent pension contribution.

In Milwaukee, where the carpenters struck on June 27, the sheet metal workers settled for a one-year contract that adds 10 cents to wages and six cents to fringe benefits. One of the results of the settlement is expulsion of the Sheet Metal Contractors Association from the 28-member Allied Construction Employers Association for failure to get the prior approval of the master association.

Situs Picketing Bill Fails to Move

Once again, efforts of the AFL-CIO building trades unions to secure federal legislation that would ease restrictions on construction site picketing appear to have been defeated.

Congress almost killed the proposed legislation by committee action last week when the conservative House Rules Committee refused to release the Thompson situs picketing bill for a vote on the House floor.

At the same time, the House Labor Committee, which had previously approved the bill, lost its chance to force floor action before the convention recess under the Calendar Wednesday rule, when committee chairman Graham Barden (D., N. C.) successfully filibustered away the committee's opportunity to act.

The two moves were part of intricate political maneuverings on the part of strong opposition forces. They would have been completely successful but for last week's decision to call Congress back into session after the political nominating conventions are over.

With this reprieve, a small flicker of hope still exists among proponents of the legislation that enough pressure can be applied to permit full congressional action later in the year. Union leaders still feel the measure can be passed if it reaches the floor.

Perhaps the determining factor in the fate of the legislation will be how members of Congress react under pre-election pressure to fulfillment of the congressional commitments that were given last year to allow House and Senate votes on the bill.

For the past few weeks the situs picketing bill has sparked one of the hottest fights in Congress. Under the bill, a craft union could picket and shut down an entire construction project whenever a lawful dispute arose with any one of several contractors working on a job.

A Senate Labor Committee subcommittee completed brief and stormy hearings on the bill last week and prepared to send it along to the full committee.

Among those who testified at the hearings was Associated General Contractors spokesman Charles Keller, Jr., who condemned the bill as too vague, too dangerous, too unfair and too detrimental to the national defense program.

Despite White House support of the legislation, heavy opposition among Republicans and southern Democrats has so far succeeded in keeping it from a vote. To be successful, those who want the bill to become law will have to find a way to by-pass the opposition during the short session in August.

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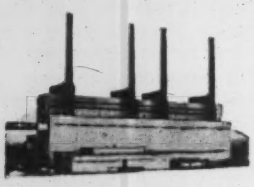

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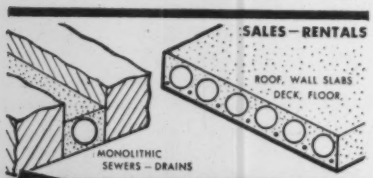

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Schoemann: Sell Contract System

Peter T. Schoemann, general president of the plumbers union, last month urged members of the construction industry to get out and sell the contract system of construction to the federal government and to private industry.

Speaking at the 78th annual convention of the National Association of Plumbing Contractors in Cleveland, Ohio, Mr. Schoemann said the construction industry is faced with two serious threats: It is being invaded by missile manufacturers on the one hand, and, on the other, by industrial concerns that put their own employees on in-plant construction work.

Mr. Schoemann charged that such aircraft companies as Convair, Boeing, Martin, Douglas, Hughes, North American, Fairchild, Lockheed and Chance Vought are "up to their necks" in the "missile business." "Every single one of these companies," he said, "is a prime contractor charged with the duty of delivering the missile and the missile site both ready for action."

This, he argued, is a radical departure from historical patterns. He explained that since the days of the Wright brothers, the aircraft industry has been "strictly a manufacturing operation" for the production of winged aircraft, with the construction of air bases, even under government contracts, being performed by the construction industry. But now with the switch to missiles, the aircraft companies are also getting the government contracts for missile bases and are doing "as much of this work as possible" themselves, he said.

"Electronics, cabling, tracking systems, fueling, piping and instrumentation at missile sites—all this work is being carried on, to one extent or another, by plant technicians on the job site instead of by skilled building trades mechanics," Mr. Schoemann asserted.

Result, he said, is a "very direct threat" to the contract method of construction and to the livelihood of contractors and construction workers. In the case of the second threat—the performance of in-plant construction work by industrial workers—the federal government is again one of the prime offenders, Mr. Schoemann charged.

Sketching in the background of the problem, he said that automation, especially notable in oil refineries, chemical and atomic energy plants, is fast doing away with large production crews. Plants that keep a skilled labor force adequate to handle peak work loads are turning to construction work to keep the men busy in slack periods.

"In case after case," according to Mr. Schoemann, "this has meant the companies have done their own construction, alteration and repair work themselves with their own employees—work which they would ordinarily have contracted out to plumbing, heating and air conditioning or electrical or other contractors engaged in the construction industry."

An example, Mr. Schoemann said, is Goodyear's operation of the Portsmouth, Ohio, gaseous diffusion plant for the United States Atomic Energy Commission on a cost-plus basis. He accused Goodyear of maintaining large work crews for peak repair jobs and of using them in between for rebuilding entire cooling towers, installing air conditioning systems and building new water and waste disposal systems.

Mr. Schoemann said that both threats to the construction industry must be met "by constant, continuous, positive action on our part."

"We've got to sell both the federal government and private industry on the contract system of construction as the most effective and efficient means of construction," Mr. Schoemann continued. "When it comes to automated plants, we must show management that we can perform major overhaul and peak repair jobs better and cheaper than they can. In this way they can reduce their skilled work crews and also contract out their other construction, alteration and repair work."

The Construction Industry Joint Conference is working on both problems. Latest effort is to get Davis-Bacon coverage for all missile base "construction" work (ENR June 30, p. 58).

Safety Inquiry Started On Excavation Cave-Ins

Contractors working in Pennsylvania may be faced with new safety regulations as a result of an increase in accidental deaths and injuries resulting from excavation cave-ins in the state.

An immediate study of the problem has been ordered by William L. Batt, Jr., secretary of the state Department of Labor and Industry.

The department has prosecuted eight construction firms so far this year for negligence resulting in fatal accidents. There was only one prosecution for the entire year of 1959.

One of the current regulations most commonly violated, Mr. Batt said, is one specifying that ditches and excavations four or more feet in depth must be shored and braced.

Labor in Brief . . .

• **Final test assured**—The U. S. Supreme Court last week agreed to review the hiring hall standards announced by the National Labor Relations Board in the Mountain Pacific case and the use of the board's Brown-Olds reimbursement remedy in cases of violation. Two cases up for review involve teamsters, one relates to carpenters.

• **Price, wage review**—A bill authorizing the President to conduct hearings on price increases that appear to threaten the "national economic stability," and on wage increases to which they are attributed, was approved last week by a subcommittee of the Senate Banking Committee. The bill is sponsored by Sen. Joseph Clark, Jr. (D., Pa.).

• **Minimum wage**—Construction is only nominally affected by the $1.15 minimum wage bill passed by the House last week. The small additional coverage is limited to store workers and carries no overtime protection. Most construction workers now covered are paid more than $1.15. The Senate is expected to take more liberal action in the August session.

• **A labor board effort**—A series of regional advisory conferences on the handling of National Labor Relations Board cases is being held around the country. Local lawyers meet with NLRB staff members to exchange ideas on expediting and improving labor case procedures. The plans was inaugurated by NLRB General Counsel Stuart Rothman.

• **Mitchell honored**—Labor Secretary James P. Mitchell was honored by organized labor at a testimonial dinner in Washington, D. C., last week. He was hailed as an understanding friend of labor and as a "liberalizing influence" on the Eisenhower Administration.

• **Steel slump** – Steelworkers Union President David McDonald told congressional leaders that the cutback in steel production—down to 54.8% of capacity last week—is pushing the economy back to 1958 recession levels. He said 400,000 steelworkers were already out of work or on short workweeks. Calling for federal action to stimulate the economy, he urged passage in the August session of such legislation as minimum wage and federal aid for school construction.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record
P.O. Box 12, New York 36, N. Y.

Bids: July 14, 1960

Grand Central Parkway Reconstruction

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m., Advanced Eastern Standard Time, on July 14, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON GRAND CENTRAL PARKWAY RECONSTRUCTION, NORTHERN BOULEVARD TO KEW GARDENS, QUEENS COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. SM-167.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.

(b) Mr. Austin M. Sarr, District Engineer, New York State Department of Public Works, 325 West Main Street, Babylon, Long Island, New York.

(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. Refunds of deposit for plans, specifications and proposals will be made only in case the deposits of individual sets are $10.00 or more, per Chapter 835, Laws of 1960.

The Engineer's Estimate of cost for this work is $53,750.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $3,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Bids: July 14, 1960

Soil Explorations and Foundation Investigations

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m., Advanced Eastern Standard Time, on July 14, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON NORTHERN BOULEVARD, F.A.I. ROUTE 515-1-2, GRAND CENTRAL PARKWAY TO WHITESTONE BRIDGE APPROACH, NEW PROJECT NO. 1-678-1(7), ITEM 30, QUEENS COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. FA-SM-166.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.

(b) Mr. Austin M. Sarr, District Engineer, New York State Department of Public Works, 325 West Main Street, Babylon, Long Island, New York.

(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. Refunds of deposits for plans, specifications and proposals will be made only in case the deposit of individual sets is $10.00 or more, per Chapter 835, Laws of 1960.

The Engineer's Estimate of cost for this work is $47,325.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,500.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Bids: July 27, 1960

New York International Airport Modification to High Tension Electrical Distribution System

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M 580

Sealed proposals for the installation of switchgear furnished by the Authority and the relocation of equipment and circuits incidental to these installations at Lighting Vault 1, 2, 3, 4; Underpass Pumphouse; Federal Building; Fuel Storage Area; Temporary Terminal Building; Hangars 1, 2; Hangars 3, 4, 5 will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York 11, New York, until 11:00 A.M. Wednesday, July 27, 1960, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to Treasury Department, Room 1001, where a receipt will be issued. The receipt is then to be delivered to the Department of Purchase and Administrative Services, which will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals. The deposit will be forfeited if the documents are not returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, July 7, 1960

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5363) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, August 4, 1960, for furnishing four (4) 96-inch hollow-jet valves for river outlets, Glen Canyon Dam, Colorado River Storage Project, Arizona-Utah. Delivery is desired within 450 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

OFFICIAL PROPOSALS

Bids: July 14, 1960

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 14th day of July, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany, New York						
Essex (Rte. 28N)	R.C. 60-123	County Line-Aiden Lair, Pt. 1, S.H. 658 Minerva-Aiden Lair, S. H. 5186 Aiden Lair-Newcomb, Pt. 1, S.H. 5187	6.90	Asphalt Concrete	$12,000 Plans $5	$223,000
Rensselaer (Rte. 154)	R.C. 60-54	Spring Ave: Troy-Poestenkill, S.H. 571	0.35	Asph. Conc.=0.30 Mi. Misc. Work=0.05 Mi.	$3,000 Plans $5	58,000
Warren (Rte. 9N)	R.C. 60-111	Bolton Landing-Sabbath Day Point, Pt. 2, S.H. 1718	5.02	Asphalt Concrete	$11,000 Plans $5	204,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Montgomery	U.S. 104	Lock 13-E, Erie Canal near Randall	....	New Lock Gates, Lowering Sills and Misc. Work	5% of Bid Plans $10	Not Published
DISTRICT No. 3, E. E. TOWLSON, District Engineer, 333 E. Washington St., Syracuse, New York						
Oswego (Old Rte. 57)	R.C. 60-122	Fulton-Oswego, S.H. 5382	7.50	Asph. Conc. Type 1A	$4,500 Plans $5	78,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Ontario (Rte. 245)	R.C. 60-119	Rushville-Gorham, S.H. 662; Gorham-Stanley, Pt. 1, S.H. 203; Gorham-Stanley, Pt. 2, S.H. 1196; Stanley-Geneva, S.H. 636	7.56	Asphalt Concrete	$17,000 Plans $5	300,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Chautauqua & Erie (Rte. 5 & 20)	R.C. 60-107	Irving-Silver Creek, S.H. 5452	0.07	Rehabilitation of Bridge Steel Truss 2 Sp. 267' Total	$4,500 Plans $5	79,000
Erie (Rte. 240)	R.C. 60-120	Aurora-Glenwood, Pt. 2, S.H. 751	6.15	Asph. Conc.=6.06 Mi. Misc. Work=0.09 Mi.	$28,000 Plans $5	501,000
Niagara (Int. Tour. Rte. 190)	FINIE 60-2 NIE 60-3 FARC 60-126	Interstate Route 506, Niagara Expressway (Contract 2) Suspension Bridge-Lewiston, S.H. 475 Project I-190-1(3), (U-461(11)	0.92 (1.78 Acc.)	Grading=1.71 Mi.; 9" Cem. Conc. Pavt. 2 @ 24'=0.32 Mi.; Asph. Conc. Pavt.=0.12 Mi.; Asph. Conc. Type 2B Pavt.=0.08 Mi.; Bit. Double Surf. Treat.=0.11 Mi.; Misc. Work=0.36 Mi.; H.G.S. Comp. WF Beam 3 Sp. 142.67' Total; H.G.S. Comp. WF Beam 3 Sp. 148.0' Total	$50,000 Plans $5	929,000
DISTRICT No. 6, WM J. DENNIS, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Steuben & Schuyler (Rte. 226)	R.C. 60-116	Savona-Bradford, S.H. 1102 Bradford-Tyrone, S.H. 1420	8.20	Asphalt Concrete	$14,000 Plans $5	245,000
Tioga (Rtes. 17, 17C, 38 & 96)	T.C. 60-4	Owego Village: Park and Front Sts., S.H. 5729; Front St., S.H. 9339; Main St., S.H. 9340 and North Ave., S.H. 9341; Owego-Candor, Pt. 1, S.H. 5420	0.45	Traffic Signals	$5,300 Plans $5	97,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Franklin (Rte. 11)	R.C. 60-112	Nicholville-Moira, S.H. 5284 Malone-Moira, Pt. 3, S.H. 5076	4.79	Asph. Conc. Type 1A	$8,000 Plans $5	149,000
Franklin (Rte. 37)	R.C. 60-124	Raquette River-Hogansburg, Pt. 2, St. Regis Indian Reservation-Fort Covington, Pt. 1, S.H. 8396	4.83	Asphalt Concrete	$12,000 Plans $5	218,000
Jefferson (Rte. 12)	R.C. 60-125	Clayton-Alexandria Bay, S.H. 5304	7.09	Asph. Conc. Type 1A	$13,000 Plans $5	231,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Westchester (Rte. 22)	R.C. 60-117	Tuckahoe-White Plains, Pt. 1, S.H. 5355	2.42	Asphalt Concrete	$11,000 Plans $5	194,000
DISTRICT No. 9, J. C. FEDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rte. 17)	R.C. 60-114	Vestal, S.H. 420 Vestal-Binghamton, S.H. 1613	4.75	Asphalt Concrete	$11,000 Plans $5	191,000
Chenango (Rtes. 41 & 206)	R.C. 60-113	Afton-Coventry, Pt. 2B, S.H. 8185 Coventryville-Bainbridge, S.H. 8216	8.10	Asphalt Concrete	$21,000 Plans $5	374,000
Otsego (Rte. 205)	R.C. 60-118	Hartwick-Oaksville, S.H. 8425	5.12	Asphalt Concrete	$10,000 Plans $5	190,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956," being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award; or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: July 28, 1960

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 28th day of JULY 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany, New York						
Essex Rte. 73	R.C. 60-132	Lake Placid-Cascade Lakes, Pt. 2, S.H. 8390 Cascade Lakes-Keene, S.H. 8274	10.97	Asphalt Concrete	$23,000 Plans $5	$416,000
Saratoga & Warren Int. T. Rte. 87	FITS 60-11	Interstate Rte. 502 (Route 9 to Hudson River) S.H. FISH 58-19; Interstate Rte. 502 (Hudson River to Gurney Lane) S.H. FISH 59-9 Project No. I-87-3(34)	9.70	Traffic Signs	$2,100 Plans $5	39,000
DISTRICT No. 2, LACY KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Fulton & Hamilton Rte. 30	R.C. 60-128	Northville-Chapmans Corners S.H. 362; Northville Village-North, S.H. 5065; County Line-Hope Center, S.H. 5038	4.32	Asphalt Concrete, Type 1A	$9,500 Plans $5	168,000
DISTRICT No. 3 EARL E. TOWLSON, District Engineer, 333 E. Washington Street, Syracuse, New York						
Cayuga Rte. 34	FAC 60-5	City of Auburn; North Street Arterial Highway (Seymour St. to North City Line) Project No. U-1114(4)	1.19	Asphalt Concrete Type 2A=1.16 M.; Misc. Work=0.03 Mi.	$30,000 Plans $5	546,000
Oswego Rte. 104	FARC 60-105 FAC 60-8	Oswego-Sterling, S.H. 280; City of Oswego, East-West Art. Highway (West Seneca St. & West Bridge St.) Project No. U-346(9)	1.58	Asphalt Conc.=1.31 Mi. Misc. Work=0.27 Mi.	$46,000 Plans $5	846,000
Seneca Rtes. 5, 20, 96A	FARC 60-127	Geneva-Macdougall, S.H. 8183; Geneva-Waterloo, S.H. 5087; Geneva-Waterloo, Pts. 2 & 3, S.H. 8240 Project No. F-452(8); U-452(8); U-406(5); UG-452(8)	2.69 (0.63 Acc.)	9" Cem. Conc. Pavt.=2.96 Mi; Asph. Conc. Tr. 1A=0.36 Mi.; 1 Br. I-Beam 3 Sp. 291'; 1 Hgs I-Beam 2 Sp. 175.5'	$109,000 Plans $5	1,971,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe	FITC 60-6	Interstate Rte. Conn. 590, S.H. FIC 58-2; Rochester City Eastern Expressway Pts. 2 & 3 Project No. I-490-2(18)	1.23	Traffic Signals	$3,500 Plans $5	60,000
Monroe Rte. 250	FARC 60-103	Mosley Road, S.H. 1836 Hannan Corners-Fairport S.H. 1290 Project No. S-684(2)	3.90	Asphalt Concrete	$13,000 Plans $5	227,000
Monroe	M 60-6	Bridge E-176 Websters, near Spencerport; Bridge E-177 Cressys in Adam's Basin	...	Cleaning & Painting 2 Bridges over Erie Canal	$300 Plans $5	5,400
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie Rte. 5	FAC 60-10 FAC 60-11	City of Lackawanna: Hamburg Turnpike Art. Highway (Ridge Rd.-North City Line); City of Buffalo: Fuhrmann Blvd. Art. Highway (So. City Line-Tifft St.) Project No. U-750(20)	0.66	Asphalt Conc. Tr. 2A=0.49 Mi. Cement Conc. Pavt.=0.11 Mi. Misc. Work=0.06 Mi.	$15,000 Plans $5	273,000
Erie Rte. 5	FATC 60-5	Main St. Pt. 1, S.H. 69; Williamsville Village, S.H. 5061; Main St. Pt. 2, S.H. 87 Project F-933(7)	1.41	Traffic Signals	$3,000 Plans $5	52,000
DISTRICT No. 6, WILLIAM J. DENNIS, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Steuben Rtes. 15 & 17	FATS 60-10	Painted Post-West City Line at Corning, Pt. 1, S.H. FASH 59-10; Painted Post-West City Line at Corning, Pt. 2, S.H. FASH 57-11; Corning-Painted Post, S.H. 5026; Corning City-West City Line, Chestnut St., S.H. FAC 57-5 Project No. U-225(18); U-593(14)	3.76	Traffic Signs and Delineators	$2,600 Plans $5	48,000
Steuben Rte. 21	FARC 60-109	Hornell-Wayland, Pt. 2, S.H. 9029 Hornell-Wayland, Pt. 3, S.H. 8194 Project F-375(9)	1.30	Asphalt Concrete	$22,000 Plans $5	389,000
DISTRICT No. 7, ROBERT W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
St. Lawrence, U.S. Granville, Ont., Can.	O.B.A. 60-7	Ogdensburg Bridge Canadian and U.S. Approaches	2.40	Traffic Signs	$600 Plans $5	11,000
DISTRICT No. 8, KURT G. RAUER, District Engineer, Pleasant Valley Rd., Poughkeepsie, New York						
Columbia	T.S.P. 60-2	Taconic State Parkway (Rte. 203-N.Y.S. Thruway, Berkshire Sec.) Town Road (Chatham-Red Rock); County Road No. 24; Town Road (Hartigans Road); Chatham-East Chatham, S.H. 1933; Town Road (Chatham Center-East Chatham)	4.26 (5.25 Acc.)	Grad. & Drain.=6.52 Mi.; Asph. Conc.=0.64 Mi.; Top Crse, Graded Gravel=2.35 Mi.; 3 H.G.S. & 1 R.R. Bridge Comp. I-Beam; 3 SP. 187.4'; 3 SP. 119'; 4 SP. 264.5'; 3 SP. 245'	$150,000 Plans $10	2,780,000
Dutchess Rtes. 22 & 55	FARC 60-110	Billings-Poughquag, S.H. 8525; Stonehouse-Stormville, S.H. 1162; Stonehouse-Pawling, S.H. 1677; Pawling-Patterson, S.H. 343; Pawling Village, S.H. 5009 Project No. F-1028(3); F-625(5); and F-FG-625(5); F-350(23)	(0.57 Acc.)	Asph. Conc.=7.63 Mi.; Cem. Conc. Pavt.=1.17 Mi.; ridge-Reinf. Conc. Box 20.8' Span; RRGS-NYCRR-Prestressed Beam—3 Spans 139.4'; HGS Comp I-Beam—4 Spans—200.2'	$230,000 Plans $5	4,149,000
Orange & Rockland	PIP 60-1	Palisades Interstate Parkway (New Jersey State Line to Bear Mountain Bridge Circle)	25.94	Roadside Development Including 1.41 Mi. Asph. Concrete Pavement	$28,000 Plans $5	507,000
Ulster Rte. 9W	FARC 60-108	Saugerties Village, S.H. 5601 Saugerties-Kingston, S.H. 228 Project No. S-207(2); F-361(7)	2.37	Asphalt Concrete	$12,000 Plans $5	210,000
Westchester Rte. 9	FARC 60-39	Croton-on-Hudson Vill: Riverside Ave., S.H. 1207; Croton River-Peekskill, S.H. 657 Project No. U-358(11)	2.74	Demolition of Bldgs.	$11,000 Plans $5	206,000
DISTRICT No. 9, JOSEPH C. FREDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome Rtes. 17 & 41	FARC 60-121	Windsor-Deposit, S.H. 5338 Bettsburg-McClure, Pt. 2, S.H. 8285 Project No. F-344(27)	8.42 (2.98 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var.=8.26 Mi.; Bit. D.S. Treat. Pavt.=3.09 Mi.; 2 Brs. Comp. I-Beam; 2 Sp. 125.8'; 2 Sp. 125.8' 5 H.G.S. Comp. I-Beam; 3 Sp., 136.9', 3 Sp. 134.3', 5 Sp. 356.6'; 5 Sp. 356.2', 4 Sp. 239.9'	$475,000 Plans $10	8,482,000
Delaware Rte. 206	FATS 60-12	Walton-Downsville, Pt. 1, S.H. 8515 Walton-Downsville, Pt. 2, FASSH 48-18 Project No. S-44(7)	6.77	Traffic Signs	$220 Plans $5	4,000
DISTRICT No. 10, AUSTIN M. SARR, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Richmond Int. Tr. Rte. 278	FICLE 60-1	Clove Lakes Expressway, Cont. 1 Interstate Rte. Conn. 512 (Goethals Br. Approach to Victory Boulevard) Project No. I-278-1(49)	2.38 (10.12 Acc.)	9" Cem. Conc. Pavt. with Carb. Black 2 @ 24' & 36' Var. Wide=2.10 Mi.; Misc. Work=0.28 Mi.; Acc. Rds. Cem. Conc. Pavt.=4.86 Mi.; Asph. Conc. Pavt.=5.26 Mi.; Incl. 2 RRGS Pl. Girds. 50.5', 49.9'; 9 H.G.S. 7 Rolled Girder, 3 Sp. 133'; 4 Sp. 269.3'; 4 Sp. 285.4'; Twin, 3 Sp. 143.5'; Twin, 3 Sp. 101.6'; Twin, 4 Sp. 199.8'; 4 Sp. 190.9'; 2 Pl. Gird., 1 Sp. 114.9', 1 Sp. 100.9'	$800,000 Plans $10	14,295,000
Suffolk	HSP 60-1	Heckscher, State Parkway Cont. 2 (Southern State Parkway to Sunrise Highway)	5.44 (13.94 Acc.)	Grading & Drainage=7.61 Mi.; Asph. Conc.=11.77 Mi.; 5 H.G.S. Rein. Conc. Rig. Fr., 2 Sp. 126.4'; 2 Sp. 145.78'; 2 Sp. 121.78'; 2 Sp. 148.82'; 2 Sp. 120.58'; 2 H.G.S. Comp. Gird. 2 Sp. 140.94'; 2 Sp. 153.98'	$305,000 Plans $10	5,555,00

(Continued on following page)

OFFICIAL PROPOSALS

(*Continued from preceding page*)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and tothe special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: See Advertisement

The Port of New York Authority

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N.Y., until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract NA-140.018—Newark Airport—Hangar No. 14—Installation of Rotating Beacon—No deposit required—Bids will be received until 2:30 P.M. on Tuesday, July 19, 1960.

Contract EXD-120.077 — Port Authority Building—Alterations to Sixteenth Floor—No deposit required—Bids will be received until 2:30 P.M. on Tuesday, July 19, 1960.

Contract NYA-410.012—New York International Airport—International Arrival and Airline Wing Buildings—Alterations to Interior Sign System—No deposit required—Bids will be received until 2:30 P.M. on Tuesday, July 26, 1960.

Contract NYA-410.011—New York International Airport—Alterations to Parking Fields, Pools and Aprons—Deposit $50.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, July 26, 1960.

Contract BP-130.006—Brooklyn-Port Authority Piers—Demolition of Buildings in the Vicinity of Hamilton Avenue and Conover Street—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, July 26, 1960.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N.Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, July 7, 1960

Bids: July 15, 1960

Zipaquira Thermal Electric Plant
Empresa De Energia
Electra De Bogota

NOTICE TO CONTRACTORS

The Empresa de Energia Electrica de Bogota will accept proposals for furnishing all labor tools, equipment and field supervision, and such materials as will be necessary for the construction of the Civil and Mechanical Works of a 33,000 KVA Steam Electric Power Generating Station.

The Civil and Mechanical Works include, but are not specifically limited to, the following:

1) Excavation, foundations, structural steel for the Powerhouse, the coal and ash handling facilities, the condenser cooling water circulating system, and miscellaneous yard structures, systems and facilities;
2) The erection of one (1) 308,700 lb/hr. boiler;
3) The erection of one (1) 33,000 Kw steam turbine generator and surface condenser plant;
4) The erection of certain major auxiliaries, such as pulverizers, pumps, tanks and heaters;
5) The installation of certain major piping systems, such as condenser cooling water, main steam, pulverized coal, etc., and
6) The installation of certain items of electrical equipment and materials, such as motors, conduit, wiring and grounding.

Interested Contractors who have satisfactorily performed comparable work previously should obtain copies of the bid documents from Empresa de Energia Electrica de Bogota, Apartado Aereo No. 4453, Bogota, Colombia.

Information concerning the bid documents can be obtained from the Consulting Engineers, The J. G. White Engineering Corporation, 80 Broad Street, New York 4, N. Y. and OLAP-INGENIERIA, Apartado Aereo No. 5099, Bogota, Colombia.

Invitations for proposals will be available on July 15, 1960. Proposals are to be based on lump sum prices with unit price adjustments for increases or decreases in the work.

Bids: July 29, 1960

New York International Airport
Alterations to Building 141

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M—596

Sealed proposals in connection with alterations to Building No. 141 at New York International Airport will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York 11, New York, until 11:00 A.M. Friday, July 29, 1960, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to Treasury Department, Room 1001, where a receipt will be issued. The receipt is then to be delivered to the Department of Purchase and Administrative Services, which will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals. The deposit will be forfeited if the documents are not returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, July 7, 1960

READ THE OFFICIAL
PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5359) will be received at Prineville, Oregon, until 10 a.m., Pacific Standard Time, August 4, 1960, for furnishing labor and materials for earthwork and structures for Distribution Canal, Station 5+71.23 to Station 900+10, Crooked River Project, Oregon. Location near Prineville, Oregon, in Crook County. Principal items are 198,000 cu. yds. excavation; 1,000 cu. yds. concrete in structures; 196 Mbm timber in structures; and other work. Completion time 360 days. For particulars, address Bureau of Reclamation, P. O. Box 578, Prineville, Oregon; P. O. Box 937, Boise, Idaho; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

U. S. ARMY ENGINEER DISTRICT, ROCK ISLAND, ROCK ISLAND, ILLINOIS. Sealed bids will be received at this office until 11:00 o'clock a.m., c.d.t., 21 July 1960, and then publicly opened for the sale of dipper dredge "St. Paul", steel hull, 110' x 40' x 6', steam powered, dipper capacity 4 cubic yards, including items of property and spare parts located in Missouri River at Lock No. 19, Keokuk, Iowa. Further information on application.

Many contractors depend
entirely upon the

OFFICIAL PROPOSAL
COLUMNS
of
Engineering News-Record

for Opportunities to bid.
They might not see your announcements if printed
elsewhere.

You undoubtedly want their
bids on your contracts.
Make sure of them on
your next contract.

The cost is only $2.40
a line per issue.

Sanitary Engineer

Capable of responsible charge of investigations, reports, and design for large Water and Sewer Projects. Age 35 to 50. Position outside of United States. Family to accompany you.

P-4742, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

Highway Materials Research Engineer

to direct expanding research program. Salary and rank will depend on qualifications. Advanced degree and professional registration desirable. Write to **G. A. Riedesel, Division of Industrial Research, Washington State University, Pullman, Washington.**

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.,
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Specifications Writer. Permanent position available immediately with established Midwestern consulting firm. Architectural degree preferred. Moving expenses paid. 3-week vacation. Salary commensurate with ability. Write P-4694, Engineering News-Record.

Cost Engineer—for supervision of entire cost accounting system for leading building and heavy construction firm, principal office in N.Y. Metropolitan area. Minimum 5 years experience in cost supervision and analysis required. Reply with complete resume to P-4615, Engineering News-Record.

Assistant or Associate Professor of Civil Engineering to teach prestressed concrete, reinforced concrete and soil mechanics. Applicant must have MS degree and some experience. Salary open. Contact John A. Oakey, N. D. State College, Fargo, N. D.

Engineers experienced in water and sewage works projects or related fields. Opportunity for permanent connection with long established consulting firm. Please state full qualifications, experience, references and salary requirements. Location Ohio. P-4697, Engineering News-Record.

Civil Engineer—To teach in State College "Highway Technology" program. Phone or write Dean Fred Swan, Ferris Institute, Big Rapids, Michigan.

Construction Superintendent. Architectural finish, Ulster County, New York. P-4737, Engineering News-Record.

Foreman and Superintendent for Highway and Airfield construction. Work is located in Kentucky, Alabama and Mississippi. Send complete resume and date available. P-4764, Engineering News-Record.

Civil Engineer—A leading upstate New York public employer offers a challenging opportunity to assist in a professional program involving personnel selection for positions in the field of engineering. We are looking for a man with a bachelor's degree in civil engineering, a P.E. license issued by New York State or an equivalent license issued by another state and who, in addition, has at least three years of engineering experience, or teaching engineering subjects in a recognized college, or an equivalent of the above. Beginning salary for this five-day, 37½ hour-week is $7800 plus, with guaranteed increases each year. In addition, there are many fringe benefits. We are anxious to fill this vacancy as soon as possible. If time and circumstances permit, candidates may be granted personal interviews in New York City, Boston, Albany, N. Y. or other upstate New York cities. All qualified applicants are invited to send a detailed resume to Dept. A, P.O. Box 1624, Albany, N. Y.

(Continued on the following page)

WANTED

BUSINESS PARTNER as EXECUTIVE Vice-President and General Manager

Consulting Engineering and General Contracting Group

World Wide Contacts
Foreign and Domestic Projects

Sales experience Essential

Minimum investment $50,000.00

Annual income should equal investment
Send complete resume first letter

P-4350—Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

Structural Engineer

With minimum of 10 years experience, to be in charge of structural and architectural design for multi-building process and industrial projects. Must be able to design, coordinate, and supervise these requirements in consulting engineers office. Location, Boston. Send complete details of education and experience, together with references.

P-4754, Engineering News-Record
Class. Adv. Div. P.O. Box 12, N.Y. 36, N.Y.

ESTIMATOR—FIRE BRICK MASONRY

A well-established Midwestern Fire Brick Masonry Contractor has opening for an Estimator experienced in all phases of firebrick construction on large Industrial Boilers, Incinerators, Rotary Kilns and Industrial Furnaces. Some knowledge of industrial gunite construction desireable, but not essential.

A good position for a conscientious and ambitious man desirous of a secure future. Modern air-conditioned office located in Chicago, serving the Midwestern States. Profit-sharing Retirement Plan.

Free Hospitalization Insurance and Paid Vacation.

Salary commensurate with ability. Write stating experience, education, age and salary requirements to P-4752, Engineering News-Record, 520 N. Michigan Ave., Chicago 11, Ill.

All replies strictly confidential

FIELD ENGINEER

Large southeastern rock processing company with multi-units has responsible position open for experienced engineer with construction superintendent background. Will be part of small capable construction engineering group in expanding profitable operation. Opportunity for future, directly related to your ability and potential. For more information please send details about youself in strict confidence.

P-4676, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS

OVERSEAS OPPORTUNITY

24 Month Contract on a Transmission Line in Thailand

Position open to qualified Engineer with B. S. in Electrical or Civil Engineering. Must have had experience as supervising inspector on the erection of steel transmission line towers, stringing and sagging of conductor and shielding wire.

Age 30—50 preferred. Must pass physical examination and security investigation.

- Overseas Bonus
- Scheduled Overtime
- Completion Incentive
- Extra Vacation Allowance
- Medical Care and Insurance
- First Class Air Travel

Please write fully, include complete salary data to:

SVERDRUP & PARCEL ENGINEERING COMPANY

915 Olive St., St. Louis 1, Missouri

FOR LOS ANGELES, CALIF.

CONSTRUCTION ENGINEER

or superintendent, qualified to take charge of all field operations; must have thorough experience in all phases of estimating, layout, job construction for concrete slab and formwork requiring shoring (we employ Acro post, rigid and expandable frame shoring)
Join a progressive corporation as active executive; capital investment required. Present sales volume $750,000.00 annually. Reply in detail first letter, stating minimum salary required, complete background and references.

P-4745, Engineering News-Record
1125 W. 6th St., Los Angeles 17, Calif.

MAINTENANCE ENGINEER

An expanding Midwest pharmaceutical company has an opportunity for a Chemical or Mechanical Engineer with 3 to 10 years experience in Plant Engineering. Position involves the coordination of process groups and maintenance shops. Experience with building construction for hazardous operations would be valuable. Please send complete resume to

Technical Employment Coordinator
THE UPJOHN COMPANY
Kalamazoo, Michigan

• POSITIONS VACANT
(Continued from preceding page)

Sales Engineer—Engineering and sales experience required. Leading Manufacturer of steel forms for prestress and precast concrete. Territory—N. E. United States. Good salary, with future. Resume in complete confidence. P-4744, Engineering News-Record.

Assistant or Associate Professor of Sanitary Engineering, with experience in design of water and sewage treatment plants, water and sanitary sewer systems, pumping stations, and industrial waste treatment. Should have M.S., Ph. D. desired. Salary open. Well-known eastern university. P-4769, Engineering News-Record.

Data Processing Systems Analyst—Experienced and/or formal training Machine application. Need not have computer experience. Must research retire program to determine equipment required and its adaptability to administrative functions. Prefer one who has thorough knowledge of principles of accounting. Location Western Pennsylvania. Write resume and salary expected to P. O. Box 1071, Butler, Pennsylvania.

• POSITIONS WANTED

Field-office engr. layout, supervision, take off, etc. municipal, bldg. and heavy const. large or small firms, single. Location open. E. Brown, 600 N. 71st Ave., W. Hollywood, Fla.

Sanitary Engineer, 62 years old seeks an active connection. Can work with and handle men and produce results. Broad experience in investigations reports, design and supervision of construction of water and sewerage systems and water and sewage treatment plants. PW-4643, Engineering News-Record.

Field or Office Engr., experienced, grad. of 2-yr. Highway and Municipal Tech. College. Young, married and no children. Presently employed o'seas. Desire another o'seas assign't. Excellent ref. Will relocate at my expense. Avail. soon. PW-4633, Engineering News-Record.

Field Auditor or General office accountant. 35 years experience. Will relocate. PW-4205, Engineering News-Record.

Construction Supt. General Construction. PW-4482, Engineering News-Record.

Construction superintendent considerable experience in industrial and commercial work. PW-4494, Engineering News-Record.

Graduate Civil, 36, 10 years experience steel, conc. design, dredging, construction, field work; speaks French; accept work America, abroad. PW-4616, Engineering News-Record.

Executive 15 yrs exp all phases of the business, field & home office, legal-const background, mgr. atty. admstr. trouble-shooter. PW-4672, Engineering News-Record.

Construction Supt. BSCE, Exp. Mgr. Chf. Eng. Hvy. const. Roads flood control tunnels bldgs. govt. contr. Will relocate. Eiswirth, 3419 Utah, St. Louis, Mo.

Experienced construction superintendent past retirement age desires subordinate job with construction company. Recently completed year job at salary of $13,000.00 per year. PW-4671, Engineering News-Record.

Former consultant, 54, highly productive, ample capital, seeks association with established engineering firm, N.Y. City area. PW-4628, Engineering News-Record.

Party Chief & Inspector—Diversified experience—single, desires position USA or overseas. PW-4591, Engineering News-Record.

Gen. Supt. 30 years experience in heavy construction. Prefer earth moving, rock or dam and levee work. Will relocate. PW-4588, Engineering News-Record.

Technical executive, young, graduate licensed engineer, fourteen years diverse domestic and overseas experience. Presently affiliated major oil company, refining mid-management position, desires change with advanced opportunity, overseas positions considered. PW-1696, Engineering News-Record.

Engineer—20 yrs. exp. design/drafting/est. conc. & steel structures, buildings, & fndtns. Will also consider P.T. or free lance N. Y.-N. J. area. PW-4695, Engineering News-Record.

Engineering Executive. Wide industrial, chemical and civil experience; all phases administration and management. Organize and direct large design jobs or work in consulting and exec. asst. capacities. Proposals, reports, contracts, liaison, trouble shooting, P.E. in 5 States. PW-4725, Engineering News-Record.

• POSITIONS WANTED

Construction Mgr.—Field Supt.—Craft Supt. Age 45, 20 yrs. experience major projects Middle & Far East, Europe & Domestic. Petroleum, Steam Generating, Atomic Energy, Pulp, Chemical. Management duties include contract admin., customer & labor relations, planning, purchasing etc. Field duties include all and or Craft Supervision; strong emphasis on piping & instrumentation. Completing European assignment; available approx. 60 days. Overseas only. PW-4680, Engineering News-Record.

Manager of Construction. Twenty-five years corporate engineer in charge of profitability analysis, cost estimating, scheduling, construction supervision and cost control for major process industry projects. M.S. Civil Engineering. On-time completions, minimum costs, smooth startups. Reply PW-4710, Engineering News-Record.

Civil Engineer, B.S., 15 years experience, highways, streets, parking facilities, design, drainage, quantities and photogrammetry. Project Engineer and supervision of production of contract plans, able organizer. Wishes position with firm having a varied civil practice. PW-4738, Engineering News-Record.

Construction Superintendent 35 years in construction field, 25 years as superintendent on all types of heavy and commercial construction plus A.E.C. and U. S. Corps of Engineers projects. PW-4702, Engineering News-Record.

Construction Manager, age 49, P.E. 30 years all types of construction. At present employed as Project Manager on Housing Project. Previous background Manager, Chief Engineer, General Superintendent, Chief Estimator. Sound experience. Can furnish complete construction organization. Minimum $15,000. PW-4741, Engineering News-Record.

• POSITIONS WANTED

Construction Engineer, 54, Reg. (Pa., Ala.), B.S.C.E. CE, Extensive heavy, hydro construction experience. Seeks permanent position with engineering firm Virginia, South Atlantic states. PW-4701, Engineering News-Record.

Prestress-Precast. Chief Engr., BSCE, MS Credit. Exp.: Management, Sales Production, Estimating, Design, Research, Cost Control. Extensive work standard & special building & bridge products, aggregate surfacing, design consulting, new product development, profit maximizing. Seeking heavy responsibility building successful business. Available July, will relocate. PW-4726, Engineering News-Record.

Chief Estimator—Thoroughly experienced in industrial & government work. Cost conscious follow through on estimating, purchasing and sub-contract negotiating. Locate west or midwest. PW-4717, Engineering News-Record.

Operator D-6 Dozer and 175A Michigan Loader desires steady employment. Experienced quarry and pit work. Consider foreign employment. References. PW-4751, Engineering News-Record.

Superintendent—33 years experience. Commercial & Industrial bldgs—schools—hospitals. Want to relocate. PW-4753, Engineering News-Record.

Civil Engr. Univ. Grad. BSCE 3 yrs. exp. in design, estimating, field supervision, 26, single, foreign or U. S. PW-4749, Engineering News-Record.

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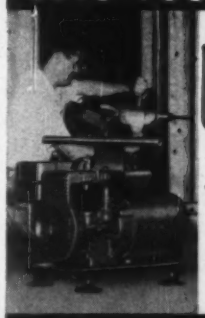

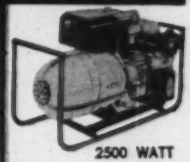

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Construction's Image

IF A CORPORATION can have an image, so can an industry. And with all the recent concern about corporate images, there ought to be a bit of serious thought given the image of an industry by those in it—specifically the construction industry by those who man it.

Corporations have come to appreciate that their images in the mind of John Q. Consumer can have a real bearing on what John thinks of their products or services. More important, their corporate image can influence what John does about their products or services—like buy them or not buy them.

Part of the problem of developing the corporate image is to relate the corporation's name to the corporation's product or service in the mind of the consumer or user. When the corporation is named, John Q. should think immediately of what it sells. And the reverse should be true, too, of course.

But then, if Mr. Consumer does think of Ajax Corp. as a maker of widgets when someone mentions widgets (or he finds he need one), what is his image of Ajax? Is it clear? Is it shaped? Is it good or bad? If the image-makers have done their job well, he'll know Ajax Corp. as that fair, neighborly, philanthropic, respected maker of widgets, a corporation that treats its employees well and will treat him likewise. Ajax will have a sale. And if it is truly the fine thing it is pictured to be in the mind of the consumer, chances are it will have the many sales and profits of a successful corporation.

Whatever applies to a corporate image can, of course, be extended to an industry. And for construction this image would be the picture an observer has in his mind as the result of contacts with the individuals, the firms, the corporations or the agencies that work in construction.

Unfortunately, these "contacts" may be nothing more than what he hears or reads in the papers, although they may result from personal observation or use of the products or services of those in construction.

A good many things can shape the image of our industry: The TVA dams that draw hundreds of thousands of visitors a year; every hole in every fence that draws a single sidewalk superintendent; every good public relations effort by every individual or group within the industry; or a job well performed for a satisfied client. Also, the image can be shaped in quite another way: by Oklahoma's highway scandals; by every poorly designed or built structure; and certainly by thoughtless or public-be-damned actions.

It would be satisfying to be able to say that the image of construction is a clear picture of accomplishment—solid, economical, necessary and advantageous accomplishment by men and organizations with knowledge, skills and integrity. But can it be that if the layman's picture is a montage that includes cracked plaster, exorbitant charges, highway detours, displeasing architecture, reports of graft, fatal accidents?

What does it matter if construction's image as an industry can stand some shaping, some more accurate projection into the public mind? It might mean the gain or loss of imaginative, ambitious manpower for the industry; it might decide the investment of public or private money in construction; it might mean different moral standards self-imposed within the industry and expected of it; it might even mean—in the long run—increased sales of the industry's products and services.

No More Aswans

DESPITE THE ANTI-AMERICAN HELL-RAISING Communists are encouraging with their special brand of foreign aid in Japan, Southeast Asia, Cuba and Latin America, our own foreign aid appropriation bill has encountered its usual tough sledding in Congress. Either the temptation to indulge in election campaign oratory is irresistible or some Congressmen refuse to see foreign aid as an essential element of our defense effort. The latter is of more serious import, and two proposed amendments, which would have crippled the effectiveness of foreign aid operations, were, therefore, particularly disquieting.

One of these amendments would have denied the use of foreign aid funds in any of the newly formed nations in Africa. The other would have required our withdrawal from our already pledged participation with other nations in the program to divide Indus River waters between India and Pakistan. Had these amendments been adopted, large areas of the world would have been offered to the Soviets on a silver platter, as the United Arab Republic was when we withdrew our help on the Aswan Dam.

The new nations of Africa, because many of them are prime sources of raw materials for us, will be important targets for the Soviets. Unless we can compete effectively to cement friendly relations with these new nations, these raw materials can be lost.

Our help on the division of the Indus River waters is of even greater urgency. The World Bank has been working on an India-Pakistan agreement for a half-dozen years. India has agreed to reimburse Pakistan for the water it diverts, and the U. S. and several other nations have pledged funds to help Pakistan develop the water supplies that are literally essential for the survival of perhaps half its population. To abandon this project and let the Soviets take over could only be disasterous.

Foreign aid is expensive. It often seems wasteful, and sometimes is. Its administration can always be improved, and its orientation and points of impact must frequently be changed. But it is an essential part of defense, and should be so recognized. To abandon or cripple foreign aid, as these proposed amendments would have done, would be a real victory for the Communists.

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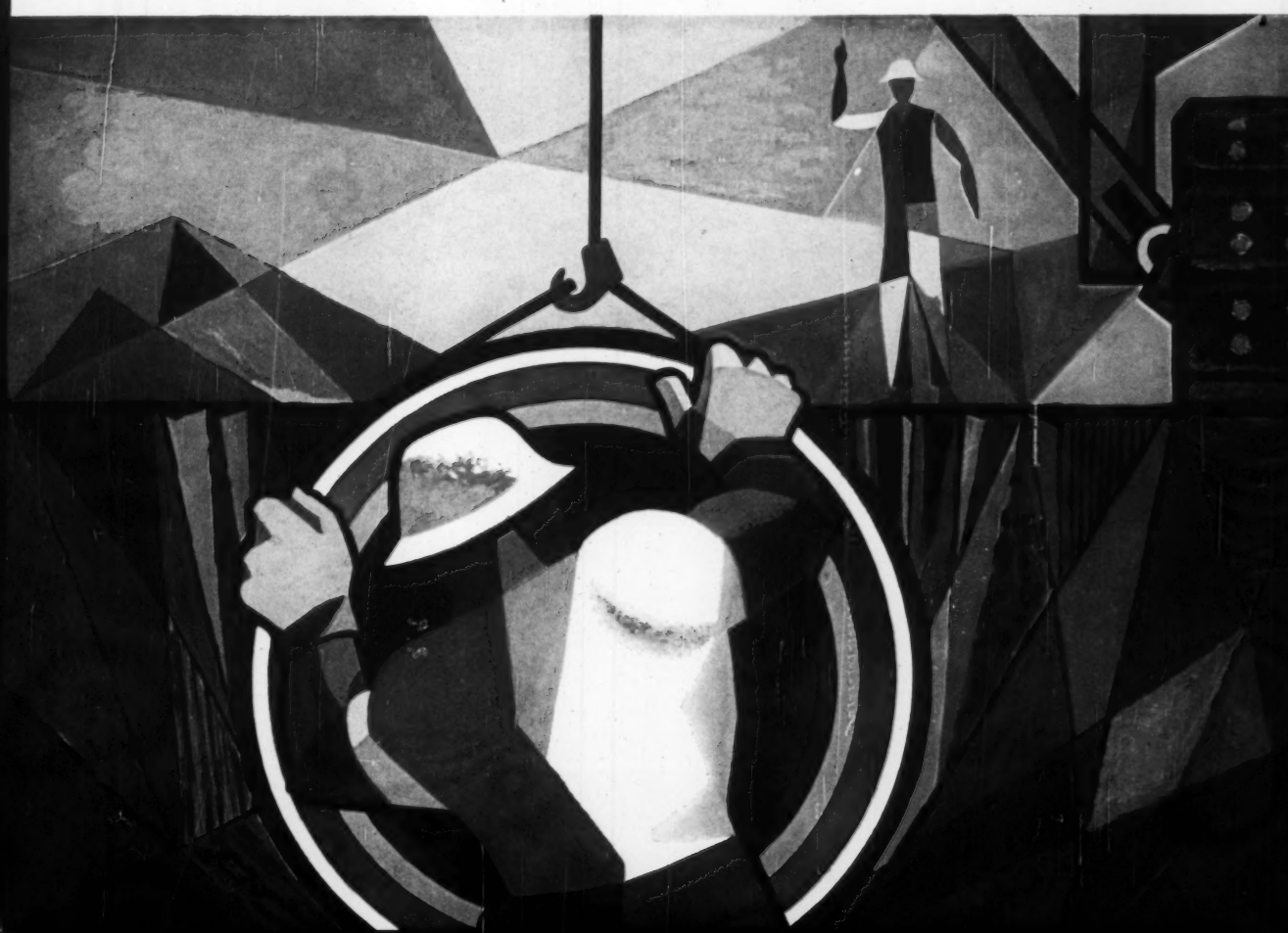

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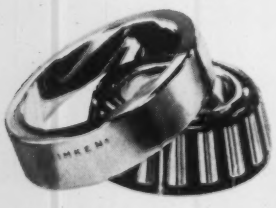

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